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ORIGINAL ARTICLES

EMBOLIC GANGRENE OF THE EXTREMITIES IN PNEUMONIA. A REPORT OF A CASE OCCURRING IN DIABETIC COMA WITH AN OBSERVATION ON THE SUGAR CONTENT OF CEREBROSPINAL FLUID DURING INSULIN SHOCK

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Introduction.—Embolic or thrombotic gangrene of an extremity is recognized in medical writings as a distinct entity among the complications of pneumonia but all authors agree that it is extremely rare. Venous thrombosis has been more common. Woodman[1] reported a case in 1863 and quite a literature has been developed on the subject since then. However, the number of cases of arterial occlusion to be found in the literature is very small. Osler saw only one case and few men have seen more than one; but Gibson[4] in 1903 reported three which he had observed. Several authors were able to find less than a dozen cases described in literature; but Bailey[3] in 1923 collected 39 and reported one of his own making a total of 40 cases.

The dramatic nature and the rarity of the condition make it seem worth while to report the following case which we have recently observed and to make a rather thorough search of the literature for descriptions of similar cases.

Report of a Case.—Our own case was that of a sudden infarction of the entire left foot occurring in a nineteen-year old boy, who had entered the New England Deaconess Hospital twelve hours before, in diabetic coma complicated by pneumonia. Examination of the leg showed that the occlusion was probably situated at the bifurcation of the popliteal artery. The entire foot became cold and purplish black in color with a large white blotch over the dorsal surface. No pulsations could be felt below the popliteal space. The foot was very painful but apparently there was a loss of superficial sensation and voluntary movement of the toes. The circulation did not return and the condition went on to frank gangrene.

Two days later the terminal phalanx of the fifth finger on the left hand suddenly became cold and black. However, the circulation gradually returned and almost all evidence of the infarction had disappeared within three days.

On entrance the patient was practically moribund, due to an extreme degree of diabetic acidosis. There were only few signs in the lungs, and the only evidence of pneumonia was a high temperature complicating the diabetic coma. However, within four days he developed a perfectly typical clinical picture of lobar pneumonia of the right base.

At no time did examination of the heart reveal any sign of endocarditis. The blood culture was negative on two occasions. The diabetic condition was probably not of long duration and there was no evidence of arteriosclerosis. We do not believe that in a nineteen-year old person the diabetic condition was more than incidently connected with the gangrene of the foot. The acidosis and coma seemed to have been brought on by the acute pneumonia infection which was also responsible for the embolus. The blood Wassermann was negative. Death occurred on the sixth day. Permission for autopsy was not given.

Review of Literature.—We find that the first report of the condition was made by Malherbe[2] in 1843. Autopsy of his case revealed a large clot in the aorta. We have found reported since then 51 other cases which with our own case make a total of 53 cases. Cases of endocarditis have of course not been included in the collection. An analysis of the 53 cases showed that one lower extremity was affected in 25 instances[4]. Of these, the right leg suffered twelve times and the left eleven times with the side not specified in two cases. In four of the cases with one lower extremity affected, some other artery in the body was also found to be occluded. In two of these, a finger was the site of the second infarction such as occurred in our case. One was a hemiplegia and the other was an occlusion of the left renal artery. Both lower extremities[5] were infarcted in six of the 53 cases. A hemiplegia and an occluded renal artery also occurred in this group. In eleven[6] of the 53 cases the embolus lodged in an artery sup-

plying an upper extremity. In two[7] more instances both arms were affected. Deve and Monpeurt[8] reported a case in which sudden death was due to an embolus lodging in the left anterior coronary artery. The lenticulo-optic artery was occluded in Aldrich's[9] case. In a case reported by Hull[10] a portion of the cheek became gangrenous after the sudden occlusion of an artery supplying the face. Hemiplegia was a complication in a total of three instances.

In five cases reported by Nielson[11], Dufour[6], Reilly[12], Head[4], and Bailey[3], there occured a type of gangrene which was superficial and symmetrical in character, very similar to Raynaud's disease. In these cases the lesion usually took the form of a superficial slough of the skin on all the fingers and toes along with the skin of the nose and tips of the ears. In Reilly's case the attacks of superficial and symmetrical cyanosis were repeated four or five times. The terminal phalanges of symmetrical fingers and toes became gangrenous and were amputated.

The pneumonia was diagnosed as lobar in type in all except two cases who were thought to have broncho-pneumonia.

The arterial occlusion occured in all instances after the pneumonia process was well under way, the time varying from two to sixty days after the onset of the pneumonia. In 37 the average lapse of time after the onset of the pneumonia was 17 days when the infarction occurred. In only twelve of the 37 cases the occlusion came less than eight days after the begininng of the pneumonia and in many instances resolution had already begun.

The characteristic symptoms which were manifest in a majority of the cases are sudden severe pain in the affected limb with blanching and coldness of the extremity. The part may later become purplish black and go through all the stages of dry gangrene. In many cases there is a superficial anesthesia and a loss of the voluntary movement of the part. In a few instances collateral circulation became adequate saving the extremity.

The mortality of the condition is high. There were eleven deaths in 42 cases in which the outcome was stated.

There are several different theories explaining the condition which give rise to the arterial occlusion with very little pathological evidence to support any of them. Whether the occlusion is embolic or thrombotic in origin does not seem to be definitely settled but the bulk of the evidence seems to favor the former process. Head[14] believed that the condition was an arteritis due to bacterial invasion of the vessel wall with subsequent thrombus formation. This probably is true in venous thrombosis at least. Other authors have believed that the occlusions were due to emboli which consisted of fibrinous masses from the pulmonary veins of the hepatized area. An intracardiac thrombus was found in Hervey's case[4] but it seems to be a rare finding. It has been known for a long time that the blood during pneumonia is rich in clot forming substances and the stagnation of blood during the circulatory impairment with subsequent intravascular clot formation must be included. In Fussell's[7] case the thrombosis seemed to begin in the terminal branches of the interossei and extend upward into the larger arteries. In the superficial symmetrical type a nervous element seems to be more probable. Dufour did not think that the vascular lesions in his case were sufficient to account for the conditions and advanced the theory that the local cyanosis was due to a toxic action on the peripheral vasomotor nerves. Buerger[4] in his discussion of the pathology of the condition apparently recognizes the possibility of either embolus or thrombosis. In the cases in which a microscopic examination was reported, the vessels were found to be filled either partially or entirely with a bland red clot undergoing early organization. Very few polymorphonuclear leukocytes were present; but there was an extensive infiltration of small round cells into the media and adventitia. No advanced organization was found even after weeks had passed since the plugging. The accompanying vein may also be involved, in which case the artery and the vein are found matted together in a mass of inflammatory tissue. When the vein is also occluded the gangrene is of the wet type, as it occurred in Buerger's case.

Age appears to have no influence on the incidence of this rare complication of pneumonia. The ages of the cases reported varied from three to sixty-seven years with an average for 45 patients of 33.5 years.

Thirty-seven of 48 cases were males.

There is apparently no relationship between the location or extensiveness of the pulmonary condition with the occurrence of emboli or their site of lodgement.

Cerebrospinal Fluid Sugar During Insulin Shock.—There has been considerable difference of opinion concerning the sugar content of normal cerebrospinal fluid but it is fairly well established now that it ranges from 0.06 to 0.10 per cent when determined by the Folin-Wu technique for blood sugar. There is apparently some relationship with the blood sugar level and the spinal fluid sugar is found to be high in diabetics with hyperglycemia. We have been unable to find any record of any instance when the sugar content of the spinal fluid has been determined during insulin shock, therefore we believe that such an observation is worth reporting. Since our observation was made on the case under discussion we are including it in this paper.

During the first 22 hours after admission to

the hospital the patient received 520 units of insulin and his blood sugar fell from 1080 milligrams to 56 milligrams per 100 c.c. The lumbar puncture was done about 30 minutes after the blood sample which contained only 56 milligrams per 100 c.c. was obtained. Shortly after this procedure the patient appeared extremely weak and apathetic but was promptly relieved by intravenous injection of glucose. Even though the blood contained not more and probably less than 56 milligrams of glucose per 100 c.c. the cerebrospinal fluid was found to contain 333 milligrams of glucose per 100 c.c. The fluid was otherwise normal. The finding suggests that the fall in the sugar content of the spinal fluid lags appreciably behind the fall of the blood sugar which occurs under the influence of insulin. It also indicates that the phenomenon of an insulin shock is not due to a lack of glucose in the cerebrospinal fluid.

Treatment of Coma.—Besides the unusual nature of the complications which arose, this case illustrates very clearly many of the principles of the treatment of diabetic coma.

On arrival at the hospital the patient was extremely acidotic and dehydrated. Deeply unconscious; his eyeballs soft as jelly; his skin loose, hot and dry; his pulse rate at 152 per minute, and his systolic blood pressure at 80, he was undoubtedly one of the most severe cases of diabetic coma ever admitted to this hospital. His breath had a strong acetone odor. His respirations were seventeen per minute and his rectal temperature was 101 degrees F. The examination was otherwise negative except for somewhat diminished breath sounds at the base of the right chest and an indefinite generalized tenderness of the abdomen.

A catheter specimen of urine contained 5.4 per cent of sugar, a slightly positive ferric chloride test for diacetic acid, a moderate amount of albumin, and a sediment which was "loaded" with brown granular casts. His blood contained 1.08 per cent of sugar. The nonprotein nitrogen was 78 milligrams per 100 c.c. of blood, and the CO_2 combining power was 12 volumes per cent. The leukocyte count was 29,000.

Because it appeared that death might occur at any moment he was given large doses of insulin. One hundred units were administered immediately subcutaneously followed in fifteen minutes by sixty units intravenously. Fifteen minutes later an additional hundred units were given, sixty units of this being given intravenously. During the next four hours one hundred and twenty units more were given subcutaneously. During the first six hours the insulin given amounted to three hundred and eighty units.

No alkalies were given and fluids were supplied in the form of 1500 c.c. of normal saline subpectorally, 500 c.c. intravenously, and 360 c.c. of tap water by rectum. The stomach was emptied by means of the stomach tube, considerable gas and 200 c.c. of black liquid which gave a strongly positive benzidine reaction, being removed. The stomach was then lavaged with warm water. About 500 c.c. of warm fluids were given in small amounts by mouth. During the first four hours he received thirty-six grains of caffiene sodium benzoate subcutaneously.

Clinically, the patient did not respond to treatment as rapidly as a case of diabetic coma usually does with insulin therapy. During the first eighteen hours the treatment consisted of 520 units of insulin and 4330 c.c. of fluids. The mental condition of the patient changed gradually from unconscousness to restless delirium with excited cries and movements. The temperature by rectum reached a peak of 104.2 degrees before it began to fall, indicating some febril complication. After eighteen hours of treatment the urine contained 1.5 per cent of sugar and the diacetic acid test was unchanged. The blood sugar fell to 0.34 per cent and the CO_2 combining power rose to 35 volumes per cent.

The physical examination remained unchanged except for the remarkable condition of the left foot which has been described. The infarction had taken place during the night while the patient was unconscious.

He was still delirious during the second day but his general appearance was distinctly improved. Lumbar puncture was performed and a clear fluid under normal pressure was obtained.

Although no insulin had been given for eight hours previous, a hypoglycemia developed in which the blood sugar fell to 0.056 per cent. The extreme weakness which the patient appeared to have at this time was to a marked extent promptly relieved by ten grams of glucose given intravenously in conjunction with ten grams of carbohydrate in the form of sugar and orange juice by mouth. No insulin was given the second day but the blood sugar remained low.

On the morning of the third day symptoms of returning acidosis were manifest. The blood sugar had risen to 0.41 per cent. and the combining power had fallen to 21 volumes per cent. The symptoms cleared up quickly when insulin was resumed in comparatively small doses. The nonprotein nitrogen had steadily risen to 91 mgs per 100 c.c. of blood. Urine was obtained only by catheter. The temperature remained high reaching 105.4 degrees. The leukocyte count was only 6,150. Physical examination showed the abdominal tenderness to be more marked in the right upper quadrant with marked tenderness also in the back just below the twelfth rib on the right side. There was also marked hyperesthesia of the skin of the

right shoulder and neck so that he cried out when the bowl of a stethoscope was applied over the right apex. Mentally he was still delirious and refused to take anything by mouth. Treatment consisted of fluids by rectum, subcutaneously and intravenously. Glucose was also administered, 80 grams by rectum and 55 grams intravenously. The total amount of insulin given during the day was 70 units.

During the following night he had a short attack of coughing and cyanosis. The next morning the terminal phalanx of the fifth finger on the left hand was found to be cold and purple.

On the morning of the fifth day he complained of pain in the right chest associated with breathing. He was coughing up large amounts of rusty sputum characteristic of lobar pneumonia. There were definite signs of consolidation at the right base. The temperature had risen and the respirations were now more rapid. The leukocyte count continued low at 8,850. The urinary sugar remained low and the diacetic acid test negative.

On the morning of the sixth day his condition was very poor. The temperature had risen to 104.5 degrees by axilla and the respirations to 30 per minute. The blood sugar was 0.29 per cent. and the CO_2 combining power was down to 20 volumes per cent. The plasma NaCl was determined to be 677 mgs. per 100 c.c. The nonprotein nitrogen had reached 107 mgs. per 100 c.c. of blood. The pulse rate rose to 184 and the blood pressure fell to 80 m.m. systolic and 45 m.m. diastolic. The leukocyte count was still only 7,100. Mentally he was wildly delirious. Although he appeared to be in extremis effort was made to support his failing circulation by intravenous injections of glucose solutions and increased insulin doses. He received a total of 100 grams of glucose by the venous route with 1120 c.c. of fluid. The CO_2 combining power rose to 32 volumes per cent. His temperature continued to rise to 106.4 and the respiration to become more rapid and difficult until he died of exhaustion shortly after midnight. Unfortunately permission for autopsy was not given.

In order to conserve space, the laboratory and clinical data have been collected along with the medication into a protocol to which the reader is referred for a more detailed account of the case.

DISCUSSION

Rapid Changes in Diabetes.—Sugar was found in the patient's urine in the evening; the next morning he was in coma! This is another striking illustration of the speed at which changes occur in diabetes. A sick diabetic should be suspected of approaching coma and he deserves expert attention. Hours are important; tomorrow, it may be too late. The prodromal symptoms of diabetic coma vary tremendously but the only safe method is to treat with suspicion any symptom in a diabetic such as abdominal pain, vomiting, loss of appetite, headache, or constipation.

Diagnosis.—The diagnosis of diabetic coma is not always evident since a comatose condition in a diabetic is not necessarily due to diabetic acidosis. Cerebral hemorrhage, basal skull fractures, meningitis, nephritis, and drug poisoning must be ruled out. For this reason a catheter specimen of urine is very valuable; but it should be remembered that a diabetic may have sugar in his urine for years and become unconscious from cerebral hemorrhage or other causes not acidosis. The presence of diacetic acid in a catheter specimen along with sugar is a very important finding as this practically rules out other causes of coma.

This case at no time had more than a moderately strong ferric chloride test for diacetic acid in the urine showing that large amounts of the ketone acid are not necessarily present in the urine during coma. However, his respirations were Kussmaul in character, his breath had a strong acetone odor, his skin was hot and dry, and his eye balls soft, altogether making the clinical picture perfectly clear.

Fever in Coma.—An elevated temperature such as this case presented points directly to the presence of some febrile complication since uncomplicated cases of diabetic coma usually have a subnormal body temperature. When fever is present a careful search for its cause is indicated because it is generally true that the infection causing the febrile condition is also responsible for the lowered carbohydrate tolerance and the onset of coma. In the case described here, physical examination revealed abdominal tenderness which became quite marked particularly in the right side and extending through to the back just below the twelfth rib. The abdominal signs were so marked that a surgical consultation was held on the question of a surgical condition in the abdomen. However, the development three days later of a typical lobar pneumonia coincident with the disappearance of the abdominal signs suggested that he had a diaphragmatic pleurisy. The hyperesthesia of the neck and trapezius ridge described by Capps as an important diagnostic sign was noted to the extent that the application of the bowl of a stethoscope to region of the right apex caused the patient to cry out even though he was irrational. We believe that he had on entry a central pneumonia which was responsible for his coma.

Leukocyte Count.—The leukocyte count of 29,000 at the time of admission may be explained on the basis of the pneumonia or the diabetic coma but more probably to the latter. Practically all cases of diabetic coma have a

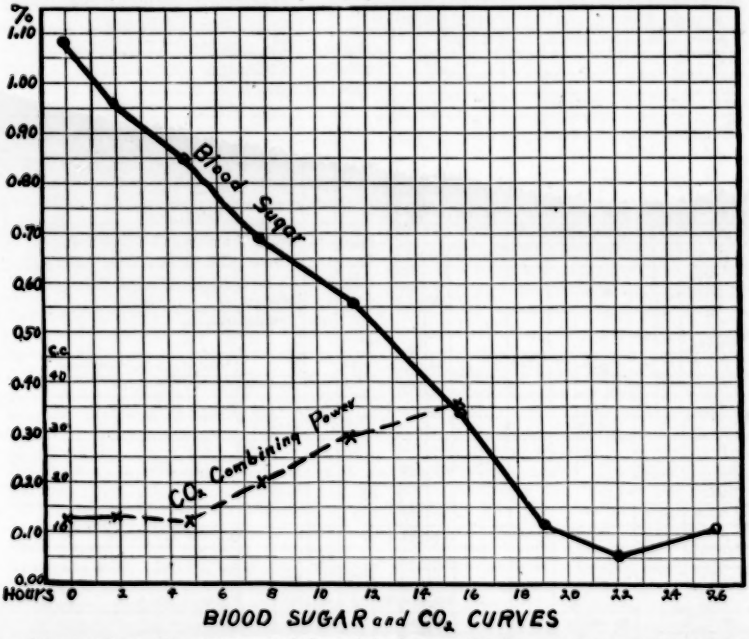
DATE / TIME	URINE		BLOOD				BLOOD PRESSURE		PULSE	TEMP °F	RESP.	INSULIN	GLUCOSE	FLUIDS		CLINICAL NOTES
	Fr'g Test	Sugar %	NPN mg. /100cc.	Sugar %	CO2 Vol. %	WBC Count	Systolic	Diastolic				Units	Grms.	Vol. c.c.	How Given	
Sept. 19 12M	+	5.4	78	1.08	12	29000	80		152	101.	17	160				Unconscious. Kussmal Respiration.
1 P.M.												100		1500	s.c.	Coff. Sod. Benz. gr. 21 Gentle Lavage
2				0.96	13				180					60	Nasal	" " " gr 7½
3												40		360	Rectum	
4				0.85	12		65	30	160			40		500	Vein	Coff. Sod. Benz. gr. 7½
5							70	30	144	102.2	23	40		180	Mouth	Pulse and Respirations Stronger.
7							80	35	140	103	21			180	"	Responds to his name.
8			79	0.69	20		75	40						100	"	Involuntary micturition.
9									156			30		50	"	
11												30		1400	s.c.	
12				0.56	29		75	45	140	103.4	24	30				Tenderness in abdomen high on right.
Sept. 20																
2 A.M.	+	1.5										30				Infarction of left foot.
3												20				Responds to his name
4				0.34	35		85	45	140	101.2	20					Restless Delirium
8				0.11	35		85	55	144	104	20					Morphine gr ¼
10				0.06									20	20	Vein	Lumbar Puncture. Very weak
12 M							108	68	140	102.6	20					Much stronger after glucose.
2 P.M.				0.11												
4							118	70	148	103.2	23			1300	s.c.	
7							127	65					12	290	Rectum	Delirious
Sept. 21																
8 A.M.	tr	++	91	0.96	21	6150	130	65	122	102.2	23	20				Tenderness in right abdomen.
12 M	tr	+							124	101.4	19	10	40	240	Rectum	Responds to questions.
4 P.M	0	++								105	20	10	20	500	Vein	Refuses all food and liquids
6				0.39	30							10		1400	s.c.	
8												10				
12	0	+							115	105.4	20	5	35	500	Vein	Infarction of 5th finger of left hand
Sept. 22																
4 A.M	0	+							120	104.4	20	5				
8	0	0				11,200			100	101.2	20					Delirium has passed
12									120	101.2	26		36	920	Mouth	
2 PM	0	++										10		870	"	
4 P.M.									102	100.6	28	10	10	900	"	Confused Mentally
8			100	0.99	31				120	100.6	22	10	10	150	"	
12	0	+							108	102.8	19	15	14	370	"	
Sept. 23. 4 AM	0	0							115	101.4	20	5	10	340	"	
8 AM	0	tr				8,850			140	103.6	28	5	14	100	"	Coughing up large amounts of Rusty sputum
12 M	0	+							105	102.8	32	5		800	"	Grunting respirations.
4 PM	0	+							110	103.8	24	5		780	"	
8	0	+							102	101	24	10		160	"	
12	0	+							126	105.4	32	5		100	"	
Sept. 24 8 AM			107	0.29	20	7,100			135	105.4	37	15				Marked delirium
12 M									130	104.2	27	15	30	500	Vein	
4 PM							60	45	164	105	29	20	40	400	"	Failing rapidly
8			127	0.08	32				140	105.8	28	15	20	200	"	
12									144	104.4	28		10	20	"	Died

PROTOCOL

transient leukocytosis even as high as 80,000 probably due in part at least to the increased concentration of the blood and to the hemorrhage into the stomach. The interesting fact concerning the leukocyte count in this case is that it was persistently low after the effects of the acidosis had passed in spite of the presence of pneumonia. Leukocyte counts below 10,000 are not rare in pneumonia usually carrying with them a grave prognosis.

Insulin.—The first step in the treatment of coma is of course, insulin in sufficiently large doses without delay. There is no definite criterion which governs the size of the initial dose. Joslin, Root, and White[13] base the dosage on the estimation of the number of hours the patient will live without insulin. If the patient's expectation of life without insulin is 24 hours they would start with 20 units per hour; if the expectation is twelve hours, an hourly dose of 40 units would be given. In a case in which death appeared to be close at hand, they would give at least 40 units every 15 minutes. However, the amount of insulin which can be safely given depends largely upon the surrounding conditions. If the patient is in a hospital where frequent blood examinations can be made and glucose is readily available for intravenous administration, to combat insulin shock, one gives large doses more readily.

Control of Treatment.—At any rate the insulin treatment must be controlled by urine or blood analysis, preferably the latter. When the facilities for determining the blood sugar are not available an hourly urine sample may be obtained by means of an "indwelling" catheter. Care should be taken that the bladder is completely emptied each time so that residual urine does not give rise to subsequent false tests. Undoubtedly the urine is less reliable, sometimes actually misleading, and great caution is necessary. When blood sugar determinations can be done every two or three hours one can be less conservative in giving insulin. At least part of the initial dose should be given intravenously particularly in severe cases. The low blood pressure signifies the poor condition of the circulation and the direct injection into the blood stream saves the time of absorption.



BLOOD SUGAR and CO_2 CURVES

Action of the Insulin.—In this case the clinical condition of the patient made it imperative that he receive an insulin effect in the shortest possible time. Consequently he was given during the first hour, 260 units of insulin, 120 directly into the vein. The subsequent doses and the effect on the blood sugar is more graphically shown in the protocol. A striking thing is the fact that the curve of the blood sugar determinations approaches so nearly a straight line when plotted against the time in hours after

insulin was first given. A curve drawn from the first four values would have predicted exactly when the blood sugar would reach a normal level 14 hours later. A more usual experience is for the first part of the curve to be relatively flat, the insulin effect being apparently delayed for a few hours after which the blood sugar falls rapidly. It is true that this case received more insulin than any other case treated in this hospital and it may possibly be that when sufficient insulin is present in the tissue its action in lowering the blood sugar is directly proportional to the length of time in which it acts. The delayed action of insulin is shown in the curve of the CO_2 combining power but less markedly than in many other cases. Strangely enough the mental symtoms may distinctly improve even though the CO_2 combining power remains unchanged. This discrepancy lends proof to the concept that the coma is not due totally to the lowering of the CO_2 per se but to the specific toxic effects of the products of a deranged fat metabolism. This has been shown experimentally on dogs by Allen. Possibly the dehydration may be responsible for some central nervous symptoms.

Alkali Therapy.—The behavior of the CO_2 combining power of the blood brings up the question of alkali therapy. Since 1916 alkalies have not been used in this hospital in the treatment of diabetic coma. Many other clinics, however, administer sodium bicarbonate in either large or moderate doses and the question is still a point of dispute. The apparent tenacity at which the CO_2 combining power of the blood holds to its low level during the first few hours of insulin treatment may appear at first to be an indication that the body is in need of more base. However, the ultimate rapid rise which occurred in this case without alkalies being administered seems to offset that indication. As Joslin has pointed out there probably remains in the tissues a plentiful supply of fixed base which along with the power of ammonia formation makes further addition of base unnecessary. Gamble[14] substantiates this view by showing that the total fixed base in the blood tends to remain constant even though the CO_2 content is largely reduced. The common observation in other cases that the coma improves before the CO_2 begins to rise leads us to give less attention to the CO_2 combining power as a measure of intoxication and to treat the patient instead of the laboratory findings by correcting the basic faulty condition of the carbohydrate metabolism with insulin and fluids. The great value of the latter is probably in part due to the relief of capillary stasis thereby allowing the insulin to get to the cells. Bock, Field and Adair[15] advocate moderate amounts of sodium bicarbonate in all cases on the grounds that in some the acidosis is due partly to organic acids which are not detected by the tests for the acetone bodies ordinarily present. The weak test for diacetic acid in the case appears to point to such a condition here but when the sodium nitroprusside test was applied directly to the blood plasma a strongly positive test was obtained. The failure of the acetone bodies to appear in the urine we believe is due to the toxic condition of the kidneys further indicated by the albumin, casts, and the rising nonprotein nitrogen of the blood. (See protocol.) This is another instance of the failure of the urine to reveal accurately the conditions within the body. The ill effects of moderate doses of sodium bicarbonate may be unimportant if they do not cause vomiting but Haldane, Wigglesworth, and Woodrow[16] as have also Beumer and Saecknich[17] shown experimentally that the administration of alkali stimulates the formation of acetone by interfering with the carbohydrate metabolism.

Glucose.—The administration of glucose with the insulin is a common practice but in this clinic it has been felt to be unnecessary as long as the blood sugar remains high. However, if the blood sugar cannot be closely followed the administration of glucose allows one to give larger amounts of insulin with safety. We believe that this case demonstrates that glucose is unnecessary but the rise in the CO_2 as the blood sugar fell without the administration of glucose.

Hypoglycemia—The dangers attached to large amounts of insulin such as this case received are clearly shown by the hypoglycemia which occurred eight hours after the last dose of insulin. (See protocol.) We believe now that the patient received from 50 to 100 units more insulin than was necessary. It is remarkable that the reduction of the extremely high blood sugar to less than a tenth of its value occurred in 22 hours even in the presence of a high fever. Insulin is truly a powerful drug. For the hypoglycemia glucose is the specific antidote and is best given intravenously because one cannot rely on the conditions governing absorption in the gastro-intestinal tract.

Need for Continued Treatment.—Coma cases show a marked tendency to revert to a condition of acidosis after improvement unless constant vigilance is maintained. Our case received no insulin during the second day in the hospital. This was possibly a therapeutic error but it shows very graphically two important principles; (see protocol,) first, that insulin is necessary to support the endogenous carbohydrate metabolism even though no food is being taken and second, that the effects of even very large amounts of insulin do not persist for a longer period of time than 10 to 15 hours.

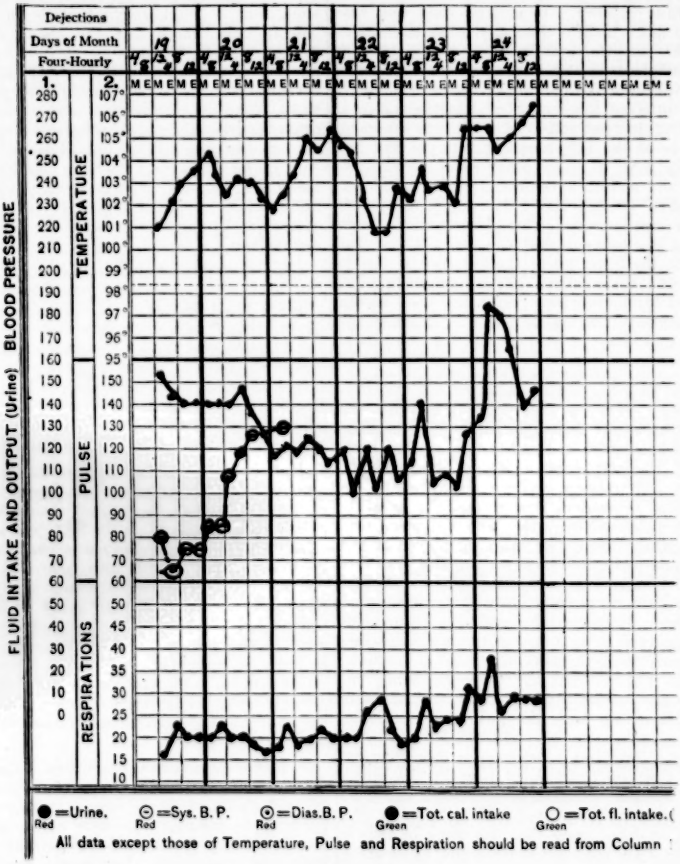
Fluids.—Next to insulin the most important need of the coma case is fluids. The protocol of this case shows the continuous administration of fluid by the various routes. Intravenous infu-

sion of normal saline or glucose solutions seemed to produce favorable effects upon the circulation as shown by the rising blood pressure. Indeed we consider intravenous glucose to be the best emergency circulatory stimulant available today.

Blood Pressure.—The blood pressure in such a case as this is one of the most valuable indices of progress. (See the clinical chart.)

Other Treatment.—The other valuable adjuncts of treatment are caffein, enema, gastric lavage and heat. The caffein can be given subcutaneously or in the form of coffee by rectum. If given at all caffein should be given in moderately large doses. Seven and half grains every two hours are generally sufficient. Its effect on the circulation is less important than the effect of insulin and fluids. An enema is very valuable because it prepares the rectum for the administration of fluid or medicine. Gastric lavage should be done in all cases. It relieves distention and empties the stomach of old food or blood which are usually present. In this case the pulse rate fell from 180 to 160 immediately after the stomach was emptied.

Respiration.—The clinical chart shows some interesting features; first, the rise in blood pressure and the fall in the pulse rate associated with the recovery from the acidosis, and second, the respiratory curve shows very well the lowered rate during the period of acidosis and the



CLINICAL CHART.

accelerated rate due to the consolidation of the lung.

SUMMARY

1. A case of embolic gangrene of an extremity associated with pneumonia is reported.

2. Fifty-two cases from the literature are reviewed.

3. An observation on the sugar content of the cerebrospinal fluid during insulin shock is reported.

4. The clinical features and treatment of a case of diabetic coma complicated by pneumonia are presented and discussed.

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THE VITAL CAPACITY IN HYPERTHRYOIDISM*

(Based upon a statistical study of two thousand two hundred observations)

BY I. M. RABINOWITCH, M.D.

In a preliminary report[1] it was shown that the vital capacity is decreased in patients with hyperthyroidism. Observations were made in three groups of cases, namely (a) those with exophthalmic goitre, (b) hyperthyroidism secondary to previously existent adenomata, and (c) hyperthyroidism following the administration of thyroid extract. With the particular unit of measurement adopted it was also shown,

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graphically, that, though wide variations may be noted, the curve tended to suggest that the vital capacity varies inversely as the basal metabolic rate. This is shown in the following table which has been reproduced from the original article.

AVERAGE VITAL CAPACITY IN RELATION TO METABOLIC RATE

Metabolic rate— Per cent above normal	Vital capacity— Per cent of normal
100-90	42
90-80	46
80-70	50
70-60	57
60-50	63
50-40	65
40-30	71
30-20	79
20	79

The total number of observations was 160. This number, it will be noted, included groups of individuals with basal metabolic rates ranging from ten per cent to one hundred per cent above the normal. No one group representing any particular metabolic rate could, therefore have been sufficiently large for statistical treatment. Because of the variables which influence vital capacity results, it is obvious that until this could be done, limited significance could be attached to the findings. Since then we have accumulated much more data, and the object of this communication is to record the results of a study of over two thousand observations.

METHOD OF INVESTIGATION

The Benedict-Roth apparatus was employed for the determination of the basal metabolic rates. In all cases the accepted standard sets of conditions for the test were adhered to. The tests were performed in the post absorptive state, thirty minutes after complete muscular rest, etc. In each case three determinations were made. The first was always discarded, and the last two only accepted if the results agreed within the limits of experimental error. Within a few minutes following the test the vital capacity was measured with a spirometer which gave readings within an error of five cubic centimeters. The use of the spirometer was first taught the patients and the maximum reading of five determinations was accepted as the final result.

CALCULATIONS

The standard unit of measurement of the vital capacity was the litres of air expired per square metre of body surface. The values obtained by this method in normal individuals agreed very closely with those previously reported by West[2], namely, 2.5 for males and 2.0 for females, with a standard deviation of ±0.25 and ±0.20 respectively.

Since in many instances the clinical conditions demanded that the patients be disturbed as little as possible, a uniform posture for both metabolic rate and vital capacity tests was adopted. The subjects were placed in the dorsal decubitus position with the head and shoulders elevated at an angle of about thirty degrees. As a result of a series of observations it was found that this position lowered the vital capacity. A correction constant was therefore necessary. The average value of this, in normal subjects, (members of the hospital staff, medical students and nurses) was found to be 1.075. That is, the product of this constant and the observed volume of air expired in this recumbent position was accepted as that volume that would be noted if the subjects were in the normal posture for the test.

A superficial survey only of the data shows that in many cases a fall in the basal metabolism was accompanied by a rise in the vital capacity and vice versa. On the other hand, in many instances wide variations and no correlation are noted, suggesting that only limited significance can be attached to the results. However the real significance can be found by statistical treatment. One of the purposes of modern statistical methods is to discover the most probable value out of a series of such apparently discordant results as noted here. These have been applied in this investigation.

The subjects were grouped according to their basal metabolic rates, that is normal (plus ten to minus ten per cent), plus 11 to plus 20 per cent, plus 21 to plus 30 etc. The combined data are recorded in the following Table:

Group metabolic rate per cent	Number of observations	Arithmetical mean of vital capacity	Standard deviation	Coefficient of variation
−10 to +10	1008	90	±13.8	15.3
+11 to +20	362	91	±14.1	15.5
+21 to +30	237	86.4	±14.6	16.8
+31 to +40	138	83.5	±14.2	17.0
+41 to +50	161	83.6	±11.0	13.2
+51 to +60	130	80.4	±15.0	18.6
+61 to +70	92	75.0	±16.1	21.4
+71 to +80	52	66.3	±17.0	25.7
+81 to +90	19	74.4	±17.0	22.8
+91 to +100	13	48.7	±13.6	27.8

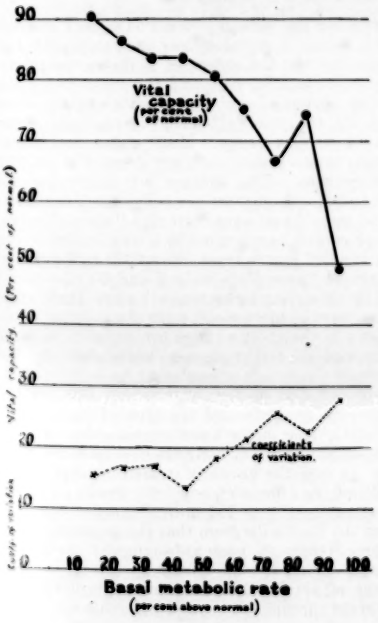
The groups are shown in Column 1. In the other columns are recorded, in order, their corresponding values of (a) the number of observations, (b) the arithmetical mean value of the vital capacity (expressed in terms of percentage of the normal), (c) the root mean square deviation from the mean, and (d) the coefficient of variation.

DISCUSSION OF RESULTS

From the treatment of all the results combined it is suggested that the vital capacity is decreased in cases of hyperthyroidism. Expressing this in terms of percentage of the normal, the arithmetical mean of the whole series

is 86.5 per cent. When, however, the cases are divided into two large groups, namely, those with normal basal metabolic rates (plus 10 to minus 10 per cent), and those with rates between plus ten and plus one hundred per cent, the results definitely corroborate this observation. The arithmetical mean value of the vital capacity in th latter group is only 83.6 per cent, whereas in the former it is 90 per cent. That the vital capacity was not normal in the group of individuals with normal basal metabolic rates may be explained by the fact that very few of these people could be regarded as normal. Many had recovered from hyperthyroidism only a short time before the test.

That the decrease in the vital capacity is proportional to the metabolic rate is suggested when the figures in Column 1 are compared with those in Column 3. These are graphically recorded in the accompanying chart. The irregularities in the latter part of the curve may to some extent be explained by a study of the coefficients of variation. In all instances but one the latter are noted to be greater than that found in normal individuals. It will be noted, however, that though they are fairly constant in the first five groups, the values become irregular and still greater as the metabolic rate increases beyond fifty per cent above the normal. This is also shown graphically, in the chart. A possible explanation of this is suggested.



Peabody[3] demonstrated that the vital capacity is decreased in heart failure. For this reason all cases of obvious heart failure were excluded in the present investigation. It is difficult, however, to imagine that in cases of hyperthroidism with metabolic rates between fifty and one hundred per cent above the normal, the heart function could be normal. Varying degrees of impairment in heart function may to some extent account for the fluctuations noted in these groups.

Because it would be difficult to discount, quantitatively, the effect of heart failure on the vital capacity, this test apears to be more of physiological interest rather than of clinical utility. As suggested in the preliminary report the findings offer a plausible explanation of the hyperpnoea and dyspnoea in hyperthyroidism in the absence of obvious heart failure. The hyperthyroid individual even when apparently at rest may be regarded as at work, since the basal metabolism is increased. The increased oxygen consumption and carbon dioxide production demand increased pulmonary ventilation. Peabody has demonstrated that the maximum volume of air available per minute, is, to a great extent, a function of the respiration rate and vital capacity. Since, as shown here, the latter is decreased in hyperthyroidism the respiration rate must increase. Means[4] by correlating the findings in the previous report with those of other workers on allied problems has shown, in greater detail, that it is not necessary to assume circulatory insufficiency to account for the dyspnoea noted in hyperthyroidism.

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SUMMARY OF CENSUS MORTALITY REPORTS JANUARY 19, 1926

TELEGRAPHIC returns from 68 cities with a total population of twenty-nine million for the week ending January 16, indicate a mortality rate of 14.9 as against 14.2 for the corresponding week of last year. The highest rate (23.0) appears for Memphis, Tenn., and the lowest (6.9) for Yonkers, N. Y. The highest infant mortality rate (145) appears for Fall River, Mass., and the lowest for Somerville, Mass., which reported no infant mortality.—*Weekly Health Index, U. S. Dept. of Commerce.*

NEW ENGLAND PEDIATRIC SOCIETY

ULTRA-VIOLET THERAPY IN PEDIATRICS*

BY EDWIN T. WYMAN, M.D.

THE value of sunlight in the prophylaxis and treatment of disease has long been recognized. Rollier may be said to be the pioneer in this field of therapy—as from the result of careful observation, he was the first to lay down a well defined scheme for carrying out heliotherapy. The essential point in his routine treatment is to gradually increase the exposure of small areas of the body to the sun's rays until the entire body is exposed, thereafter the patient receives a daily sun bath of from three to five hours. It should be pointed out that whereas Rollier attributes the beneficial effect to the sun's rays, his treatment actually consists in a combination of the sun's rays, fresh air and rest. Although he recommends this form of therapy, in tuberculosis, undernutrition, chronic infections, rickets, etc., the best results have been obtained in surgical tuberculosis and in rickets.

With recent years our knowledge regarding the sun's rays has been materially advanced by scientific investigations. It has been found that the rays of light which may be referred to as the healing or curative rays, lie in the Ultra-Violet Zone. It has been found also that these ultra-violet rays in the sun's spectrum vary in intensity during the different seasons of the year being highest during the summer months and lowest during the winter months. It is believed that this seasonal variation is due to the absorption of the shorter wavelengths by the atmosphere. In any event, it is evident that from a therapeutic point of view, the determining factor[1] is the quality not the quantity of these short or ultra-violet radiations. This is illustrated by the incidence of rickets in different geographical locations. In the Panama Canal Zone rickets is practically unknown while in New York City this disease is all prevailing, although the yearly sunshine is less and less evenly distributed in the former than in the latter district.

In many locations the ultra-violet rays or the short wavelengths in the sun's spectrum are so scanty during the winter months and on cloudy days in summer that they are of but little value from a therapeutic point of view, for that reason artificial means for producing such rays have been sought. It has been found that other sources[2] of ultra-violet rays are the arcs of carbon, iron, mercury vapor and tungsten;—sparks, especially those between zinc terminals; and the hydrogen glow discharge. The spectral energy distributions of some of these sources are shown in the chart prepared by Hull, (fig. 1). The

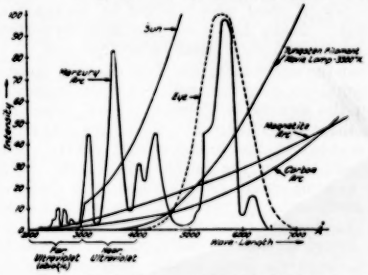

Fig. 1. Curves Showing the Intensity of Various Sources of Ultra-violet Rays at Different Wavelengths

Hull—General Electric Review.

Wavelengths given in Angstrom units.
1 Angstrom = a hundred millionth of a centimeter.
1 Millimicron = 10 Angstrom units.

curves for the various sources have been reduced to a basis of equal power consumption (400 watts) so that the ordinates of the curves represent relative efficiency, and the areas under the curves, between any given wavelengths, show directly the total efficiency of the particular lamp over this range. Hull[2] states that ultra-violet rays extend, roughly from 200 to 390 millimicrons. The shorter wavelengths, from 200 to 300 millimicrons are called the "far ultra-violet rays" and constitute the "abiotic" rays, which cannot be tolerated by living beings; while the band of waves from 300 to 390 millimicrons is termed "near ultra-violet" and may be classified as the "sunlight range" since these rays constitute the ultra-violet part of sunlight. Radiations in the abiotic range are lethal to all bacteria and all living tissues, while those in the sunlight range are stimulating to body metabolism, are only slightly bactericidal and are tolerated by the body and the eyes. For comparison with these ultra-violet sources, the spectral distribution curve of a Mazda C lamp is given in Fig. 1; also the curve of relative visual sensitivity of the human eye, which extends from approximately 390 to 750 millimicrons. It is seen from Dr. Hull's diagram that the mercury vapor Quartz lamp at present surpasses all other sources in ultra-violet efficiency and is the best means of artificially producing rays similar to the short therapeutic rays in the sun's spectrum.

*Read at a meeting held December 11, 1925.
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Hull states that the sun's spectrum ends abruptly at about 296 millimicrons due to the absorption of all shorter wavelengths by ozone in the atmosphere. For comparison with sunlight the total ultra-violet intensity (wavelengths less than 390 millimicrons) of the mercury arc (Cooper-Hewitt Uviarc, 165 Volts, 4.5 amp.) at a distance of twenty inches is the same as that of average full noon day sunlight. This does not mean equal therapeutic activity, since the arc is rich in short abiotic wavelengths not present in the sun's rays. The amount of rays from the mercury vapor arc doubles as the lamp warms from starting to normal running temperature; and falls off gradually with length of service; the ultra-violet rays diminish more than the visible rays, due to blackening of the quartz. There is considerable variability in this blackening factor. The average rate of blackening as shown in tests by Coblentz, was such that the efficiency was reduced about fifty per cent. after 2,000 to 3,000 hours of operation. The author of these tests states, in a recent paper, that with the great improvement in lamps the present rate of blackening is very slow.

There are three American mercury quartz lamps on the market. The "Alpine Sun Lamp," manufactured by the Hanovia Chemical and Manufacturing Company, the "Burdick Lamp" and the "Victor Lamp." Both the Burdick and Victor lamps have the same burner, the Cooper-Hewitt Uviarc. The quality of the rays from the Alpine and Cooper-Hewitt Uviarc burners is the same although the intensity of the rays is greater in the Cooper-Hewitt burner. It is necessary to use a longer exposure with the Alpine lamp than with the Uviarc to get the same therapeutic effect.

Now as regards the use of ultra-violet rays in the treatment of disease in infants and children it is very difficult to draw definite conclusions regarding the beneficial effects in all of the various conditions in which this form of therapy has been advised. Gerstenberger and Wahl[3] and others have found ultra-violet ray therapy of decided value in the treatment of peritoneal, glandular and osseous tuberculosis. They treated ten children. They think that of the glandular forms of tuberculosis the mesenteric is the most rapidly improved; next, the mediastinal, and last, the peripheral. Beneficial results were not obtained in pulmonary tuberculosis of the miliary type, although treatments were begun early. Benefit has also been reported by a number of workers from the use of this form of therapy in skin diseases, erysipelas, ringworm, malnutrition, chronic broncho-pneumonia and chronically infected tonsils, etc.

We shall not at this time attempt to discuss further the numerous reports which are found in the literature but will briefly refer to the results of light therapy as obtained in this clinic. During the past three years we have been studying the effects of this form of therapy in the treatment of a number of different diseases. In 1923[4] a special clinic for the treatment of rickets with the mercury vapor quartz lamp was started in the Out-Patient Department of The Children's Hospital. The clinic has been carried on since that time, except during the summer months when patients are given daily sun baths at home in place of Alpine lamp treatments. In this time we have treated about one hundred seventy-five cases of acute rickets, (varying in severity) with universal success. When we first started treating rachitic babies with ultra-violet rays, the patients were exposed to the Alpine lamp at a uniform distance of twenty inches from the surface of the body. The initial treatment was two minutes exposure to the front and two minutes exposure to the back of the body. The exposure was increased one minute to the front and one minute to the back, a total of two minutes, each successive treatment until an exposure of fifteen minutes to the front and fifteen minutes to the back, a total of thirty minutes was given. Under this scheme we found that the fair skinned babies improved more rapidyl than the dark skinned or negro babies. This was probably due to the fact that the pigment in the dark skins absorbed many of the ultra-violet rays and thus deprived the baby of the beneficial effect of the rays. We are now giving the dark skinned and negro babies longer treatments and getting equally good results with them. We are now using Alpine lamps in the Out-Patient Department and Medical Ward of the Children's Hospital where individual treatments are given. In the Infants' Hospital we are using a room with four Burdick lamps suspended near the ceiling, arranged to give as even a distribution of light as possible over the cribs. This permits us to treat a number of patients at the same time. The room has a capacity of ten cribs.

We concluded after treating a number of rachitic patients with ultra-violet irradiations and a number of rachitic patients with both ultra-violet and cod liver oil[5] that the combination of cod liver oil and ultra-violet light probably hastened the healing processes more than either ultra-violet rays or cod liver oil alone. At present we are treating the moderate and severe cases of rickets with both ultra-violet irradiations and cod liver oil. The mild cases are treated with cod liver oil alone as it seems unnecessary to have the patients make the extra trips to the hospital for light therapy. The length of time required to cure severe cases, as shown by roentgenogram and the serum calcium and phosphorous concentration is from six to eight weeks. When they are discharged from the "light clinic", cod liver oil is continued to prevent the recurrence of the disease.

At the present time there is considerable dis-

cussion regarding the question as to whether the presence of craniotabes which occurs almost universally in the early months of life in premature infants is rickets in the broad sense of the word or whether it is due to a lack of calcium deposit from some other source (Hamilton). In my experience it has been impossible to give the premature infants sufficient cod liver oil to prevent the occurrence of this manifestation, or to prevent the early occurrence of true rickets. If it can be determined that ultra-violet therapy will prevent craniotabes and the occurrence of rickets in these infants, it would be a simple procedure to install such lights in premature wards.

Ultra-violet ray therapy has been shown to exert a favorable influence in tetany. Hoag[6] has shown these rays not only influence the symptoms favorably but the symptomatic relief is paralleled by a return of the calcium concentration in the blood serum to normal. The treatment followed in this clinic is to give calcium chloride ten to twenty grains three times a day, in addition to ultra-violet irradiation. The results have been uniformly good. If rickets is present, as is often the rule, the treatments are continued until the rachitic processes are healed. After the patients are discharged from the "light clinic" cod liver oil is continued to prevent the recurrence of rickets, and the calcium chloride is continued for a time to prevent the recurrence of tetany.

A few patients treated for tuberculosis of the mediastinal glands and tuberculosis of the mesentery glands have responded well to ultra-violet therapy. The treatments have seemed to improve their general condition, relieve the symptoms, such as cough in the bronchial cases, and abdominal pains in the mesentery cases, and to favor early calcification of the glands. The results in the cases of tuberculous peritonitis have been variable. It is not expected that ultra-violet therapy will cure all cases of tuberculous peritonitis. The following case report however, indicates how valuable an asset this form of therapy may be in this disease. A female baby nine months old was admitted to the Infants' Hospital on February 23d, 1924. She had been regarded as a normal baby up to a month before admission. She developed a cough three weeks before admission and shortly afterward the mother noticed that the infant's abdomen was increasing in size. She had lost three pounds in one month. The weight on admission was thirteen pounds and ten ounces. On examination she presented the characteristic manifestations of tuberculous peritonitis. There was abdominal distension and an irregular mass in the abdomen, extending from about two inches below the spleen to the umbilicus. For three weeks after admission the baby lost weight consistently weighing at the end of that time twelve pounds and two ounces. The mass in the abdomen had been gradually growing larger extending from the spleen to just beyond the median line. For this reason and because of a negative tuberculin reaction an exploratory operation by Dr. Stone was performed. A small incision was made in the lower abdomen and the peritoneum was found to be studded with tubercles. Digital exploration revealed matting together of the abdominal viscera. There was no fluid. Following this, treatment was begun with ultra-violet irradiations. The baby immediately began to take her food better and gain in weight. The temperature became more stabilized. Light treatment and high caloric diet were continued. As the child improved the tuberculin test which on admission was negative to a high concentration of tuberculin became positive to a low concentration. She was discharged from the hospital March 16th at the age of twenty-one months, weighing twenty-four pounds and six ounces. Her general condition was excellent and the mass in the abdomen was about half the size it was as when the light therapy was started. Since discharge from the hospital she has been followed in the Out-Patient Department of the Children's Hospital. On December 1st, 1925, her general condition was excellent and the mass in the abdomen was hardly palpable. Her weight was thirty-one and one-quarter pounds.

We have observed marked improvement in patients treated for psoriasis while they were having this treatment. Our results with furunculosis have been favorable and in some persistent cases which have not responded to vaccines and local treatment, improvement was noticed when ultra-violet therapy was used. We have used this form of therapy in a few cases of bronchial asthma in which the child had a sensitization to bacteria. After other forms of treatment had failed ultra-violet irradiations had a most beneficial effect. The attacks have become less frequent and less severe and the patients were improved in all respects.

In conclusion it can be said that ultra-violet therapy is a specific in treating rickets and tetany and a valuable therapeutic agent in treating tuberculosis of the mesentery and bronchial glands and tuberculous peritonitis. The other diseases are mentioned as possible fields for this form of therapy but further investigations will be required before any definite conclusions should be drawn.

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5 Dosage of cod liver oil, up to six months, 1 teaspoonful a day; six months to one year, 1 teaspoonful twice a day; over one year, 1 teaspoonful three times a day.
6 Hoag: Am. Jour. Dis. of Child., 1923, XXVI, 186.

(These Plates refer to the article "A Room for Treatment with Ultra-Violet Rays," appearing on opposite page)

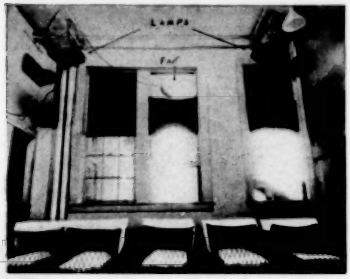


PLATE NO. 1. Light Room—Arrangement of lamps, ventilating fan and cribs.

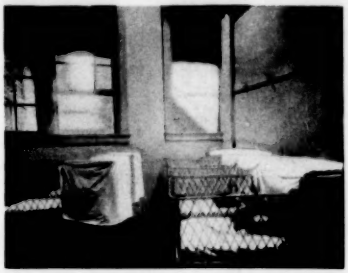


PLATE NO. 5. Light Room—Arrangement of Cribs.

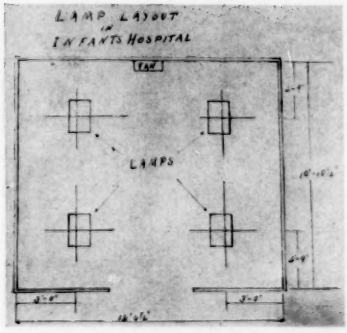


PLATE NO. 2. Light Room—Lamp Plan.

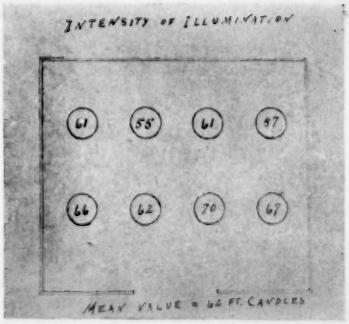


PLATE NO. 6. Light Room—Intensity of Illumination.

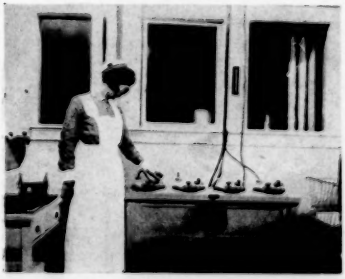


PLATE NO. 3. Light Room—Control Cabinet.

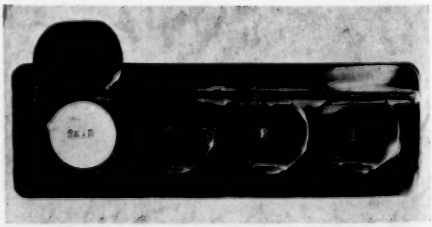


PLATE NO. 7. Actinometer (Catlin).

A ROOM FOR TREATMENT WITH ULTRA-VIOLET RAYS*

BY EDWIN T. WYMAN, M.D.

LAST winter on account of the increase in the use of ultra-violet therapy at the Infants' Hospital and the greater efficiency to be obtained by having a room where a number of patients could be treated at the same time, a room for treatment with ultra-violet rays was constructed. The details of the installation of this room are given.

PLATE NO. 4. Light Room—Method of Exposure.

so that others, wishing to install similar rooms, may profit by our experience. We are much indebted to Dr. D. B. Catlin, of the General X-Ray Company of Boston, for his assistance in designing the room and the installation.

The "light room" at the Infants' Hospital is twelve feet six inches long, ten feet ten inches wide and twelve feet high, in which are installed four Burdick, air cooled, mercury vapor quartz lamps, equipped with automatic starting controls. The lamps are placed near the ceiling, (a lamp in each corner of the room) three feet from the end and two feet nine inches from the side of the room. They are attached to two two by four stringers, which are supported by two two and one-half inch pipes which run the length of the room. (See Plates Nos. 1 and 2.) The vertical distance from the burners to the floor is ten feet and the vertical tube distance (from the patient to the burner) is seven feet six inches. The rheostats controlling the burners are enclosed in a cabinet at one side of the room and individual rheostats are used for each burner. (See Plate No. 3.)

The ventilation of the room is attained by a twelve inch fan in the top of the window on the side of the room (see Plate No. 1) and a register near the floor at the opposite side of the room. A radiator is placed in front of the register to warm the incoming air. The speed of the fan is regulated by a rheostat on the control cabinet. With this arrangement, except in very hot weather in summer, the temperature of the room can be controlled and the gases from the burners eliminated to a large degree. In warm weather the door on the side of the room opposite the fan is opened to allow better ventilation.

The entire surface of the baby with the exception of the head, is exposed. This is protected by a sheet draped loosely over the head of the crib and coming down around the baby's neck. (See Plates Nos. 4 and 5.) The front and back are given the same exposure.

To check up the distribution of ultra-violet rays over the cribs, Dr. Arthur C. Hardy of the

*Read at a meeting held December 11, 1925.
From the Department of Pediatrics of the Harvard Medical School and the Infants' and Children's Hospital.

Massachusetts Institute of Technology (in view of the fact that the lamps were all new) suggested measuring the intensity of illumination by using only the visual rays and assuming that the ultra-violet rays were present in proportion. The measurements of the intensity of illumination in foot candles at various points in the room were made by Dr. Hardy and are shown in plate No. 6. It will be noted that the mean intensity is approximately sixty-two foot candles and that the intensity varies between fifty-five and seventy foot candles. This is a variation from the mean of about thirteen per cent. The precision of the method is such that each measurement is correct to within eight per cent.

To judge the effect of the rays from the four burners at eight feet tube distance and to determine the length of treatment to be given, we used the actinometer, designed by Dr. Catlin. This is a metal sheet with four holes having hinged covers which is sewn into a piece of cloth which covers the area exposed to the rays. (See plate No. 7.) At the start one cover is raised, at the end of two minutes another cover is raised, at the end of four minutes the third and at the end of six minutes the fourth. The exposure is stopped at the end of eight minutes. After twenty-four hours the amount of erythema produced by an exposure of two, four, six and eight minutes can be noted. Tests made with this device showed the rays, for practical purposes, to be equally effective in all the cribs. The exposure to be used in starting the treatment of a patient, should be a little less than the exposure necessary to give a slight erythema at the end of twenty-four hours.

The following exposure schedeule is used in the room: The patients are divided, because of the variation in skin tolerance, according to their complexions,—light, medium, dark and black. The light complexioned patients are started at two minutes exposure, front and back, and the time of exposure increased two minutes, front and back, until a total exposure of thirty minutes, front and back is given. The medium complexioned patients are started at three minutes, front and back, and increased three minutes, front and back, each exposure, until a total of forty minutes, front and back is given. The dark complexioned patients are started at four minutes, front and back, and increased four minutes, front and back, until a total of fifty minutes, front and back, is used. The black or negro babies are started at five minutes, front and back, and increased five minutes, front and back, until a total of sixty minutes, front and back is given. The treatments are given once a day. We have found that to get the desired results, the black or negro baby has to have twice the exposure of the light complexioned baby.

CONCLUSIONS

A room with a number of mercury vapor quartz lamps suspended just below the ceiling is a practical and efficient way of giving ultra-violet irradiations to a number of patients at the same time; the use of such room has the further advantage in requiring fewer nurses than when individual lamps are used, thereby resulting in a saving of time, which is important from the administrative point of view; the possibility of producing unnecessary erythema is reduced by using a long tube distance and the life of the burners is materially increased because of their fixed position and the freedom from jars or shocks incident to moving the lamp to different parts of the hospital. The automatic starting control eliminates the necessity for manually producing the mercury arc in the burner. Should ultra-violet irradiations prove to be useful as a prophylactic measure against "acute upper respiratory infections" in children such rooms may find a place in kindergartens and schools where the chlidren can have irradiations daily during their rest hours.

We wish to acknowledge our indebtedness to Miss Ida C. Smith and Mrs. Edgar N. Wrightington, for their enthusiasm and financial help which has made the "light room" a reality.

PAMPHLET INSTRUCTION REDUCES VENEREAL DISEASE CASES

THE practical value of giving young men information regarding the venereal diseases is attested by word received by the United States Public Health Service from one of the recruiting agencies of the United States Shipping Board. Sometime ago, the Public Health Service supplied the Recruiting Service of the Shipping Board with pamphlets suitable for distribution to young men. These were given out to the men of the crews on vessels operating to the Orient and the results have been designated as "far reaching." Physicians attached to passenger vessels report that the distribution of these pamphlets among the crews had the effect of very considerably reducing the number of venereal disease cases.—*Health News—Issued by the United States Public Health Service.*

DATA CONCERNING THE AVERAGE AGE AT DEATH OF PATIENTS DYING IN HOSPITALS FOR MENTAL DISEASE IN THE UNITED STATES

THE most recent data available, which are for the year 1922, show the average age of patients dying in the hospitals for mental disease in this country to be 55.3 years. The average age at death varies considerably in the different psychoses, the extremes being 42.9 years for patients with epileptic psychoses and 74.1 years for those with senile psychoses.—*Mental Hygiene Bulletin.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 12051

MEDICAL DEPARTMENT

An American carpenter seventy-five years old entered November 12 complaining of pain in the abdomen and the small of the back. He had always been subject to sick headaches. For eight years he had lived alone and cooked his own meals. For some years he had had a moderate degree of constipation. Recently he had urinated at night. He had worked at his trade until a slack season, five months before admission.

Since the middle of the summer he had been losing appetite and weight. August 19 he got up and fell unconscious. After this he had almost continuous pain in the stomach. He often felt as if vomiting would relieve this, but could not vomit. He lost appetite until he could hardly force himself to eat. Nine days before admission he vomited a little bitter yellow fluid. A week before admission he began to have some pain in the small of the back, more on the right, and three days before admission pain in the chest with cough and blood-streaked sputum. He weighed 145 pounds the middle of August, 120 the middle of September, when he "gave up." During the illness the urine had been scanty, but there had been no pain or burning.

Examination showed an emaciated, dehydrated old man, acutely ill, with flushed cheeks and foul breath. Mentally he was somewhat irresponsible. The sclerae were icteric. The teeth were broken and decayed roots. There was marked pyorrhea. The gums were spongy and bled easily. The tongue was dry and furred. There was a hard firm supraclavicular gland measuring two cm. The lungs showed dullness at both bases and in the right axilla and patchy dullness under the left scapula. The lower portions of both lungs were filled with moist sticky and crepitant râles, heard also in both lower axillae. There were diminished voice and breath sounds at the right base. The heart sounds were faint. The action was rapid. Electrocardiogram showed sino-auricular tachycardia, rate 125. The blood pressure was 135/75. The arteries were palpable and tortuous. In the epigastrium just above the umbilicus was a hard firm irregular mass 9 cm. in diameter. There was slight epigastric spasm. In the right flank and costovertebral angle was a soft mass with marked tenderness. The liver seemed to be enlarged, but the edge could not be felt, as the mass masked the middle lobe. The testes were large, not tender. The epididymis felt nodular. The rest of the examination, including the rectal examination, was negative.

The temperature was normal, with a rise to 102.5° the day before death. The pulse was 108-140, with a terminal rise to 180. The respiration was not remarkable. The urine was dark or dark red at all of three examinations, the slightest possible trace of albumin at two, questionable at the third, bile at the first, a few to a moderate number of leucocytes at all, a few to rare red blood corpuscles at two. The blood showed 14,750 to 26,840 leucocytes, 84 to 86 per cent. polynuclears, reds normal except for some rouleau formation in one of two smears; platelets slightly reduced in numbers. A Wassermann was negative. The non-protein nitrogen was 47 mgm. per 100 c.c. The stools were clay colored at all of three examinations, guaiac positive at all; no macroscopic blood; fats present once. X-ray showed rather coarse diffuse mottling throughout both lungs, rather more marked at the right base. The examination was unsatisfactory on account of motion.

The orders were for bed with low head rest, forced fluids, liquid diet with one or two ounces of whiskey daily, morphia gr. 1/6 s.c. daily. November 14 digifolin gr. vi was given intramuscularly, and an order for digitalis gr. iss t.i.d.

The patient showed marked improvement as to dehydration, but otherwise failed gradually from admission. The second night he was somewhat delirious. Early in the morning November 17 he died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

In any man of his age the onset of continued gastric symptoms such as loss of appetite and nausea with loss of weight, in the absence of any previous gastric history, makes us think of cancer of the stomach. It also makes us think of chronic nephritis, and considerably less of pernicious anemia. We have, it is true, also some symptoms pointing to the chest, but so far those are not nearly so prominent as those pointing to the abdomen.

NOTES ON THE PHYSICAL EXAMINATION

A cervical gland measuring two centimeters ought to mean something. Supraclavicular glands enough enlarged to be palpable are common enough, but not to two centimeters.

The chief suggestion I have from the lung findings is of an enlarged liver. The dullness corresponds to that, and it is the sort of case in which especially owing to the jaundice we should expect a large liver. And although of course it may be due to changes in the lungs themselves, that does not seem to me so likely.

The bile in the urine seems to me the most definite finding there.

There is a definite leucocytosis.

I think if Dr. Holmes were here he would begin by saying that this is a poor X-ray plate. There is a good deal of respiratory movement.

DR. CAMP: It is a very poor plate. I do not think that it warrants much comment. It does show quite a bit of mottled dullness. There is so much motion present that I don't think we can say much more. It might be almost anything, consolidation or metastasis.

DR. CABOT: Is it consistent with metastasis?

DR. CAMP: Yes. It might be miliary tuberculosis, although the nodules are a little bit large for that.

DR. CABOT: It is safe to say there is something in the lungs, and it is safe to say it is not an ordinary pneumonia. The nodules would be very small for the patches of recognized bronchopneumonia, and on the whole there is very little in his history to suggest miliary tuberculosis. I had not thought of that, but I shall come back to that at the end of the case, to see if I can make anything more out of it. It seems to me a good deal more like the X-ray picture of malignant disease. Apparently he did not have a gastro-intestinal X-ray although he was five days in the hospital. One wonders why not.

MISS PAINTER: He was very ill, the house officer told me.

DR. CABOT: I suppose a gastro-intestinal examination uses up a patient a good deal more than the chest plate, doesn't it?

DR. MEANS: We try not to allow our diagnostic enthusiasm to carry us to the point of doing too much to the patient. I do not think a barium examination is a very pleasant thing for an exceedingly sick person.

DIFFERENTIAL DIAGNOSIS

DR. CABOT: The dehydration which is commented on in the beginning and at the end seems to me to have some bearing on the diagnosis. We get that drying out very much in cancer of the pylorus. We get it nearly as much in cancer of the pancreas with jaundice coming from that, but I do not remember having seen it in miliary tuberculosis. The natural snap diagnosis of anybody here would be cancer of the stomach with metastases to the liver and lungs. I think the main thing is to see what reasons there are for doubting that natural snap diagnosis.

In the first place, taking the suggestions of the X-ray plate, can it be miliary tuberculosis? He has normal temperature for four days. That is in my experience very rare with miliary tuberculosis. He is seventy-five years old, and has had nothing that I can think of in his history or physical examination that indicates a focus from which a miliary process could have started. He begins with well marked gastro-intestinal symptoms and not with fever, which would not be according to my memory of miliary tuberculosis. I think we can exclude it, and if it is excluded I do not know anything else to say of those lung fields except *small multiple metastases of malignant disease.*

Now as to the site of the primary process it seems to me all the indications we have point to the stomach, but we have neither any chemistry nor any X-ray of the stomach. Probably quite rightly those were not attempted. Where else could it be? Of course it is always possible to have a cancer start in the omentum. That generally gives us a mass and a pretty early ascites but not so much gastric disturbance. If his cancer was primary in the bile ducts or the gall-bladder again I should say the position of the mass felt would not be at all characteristic, the stomach symptoms should not be so notable and he should not have so much dehydration.

We have positive guaiac tests in the stools, which seem to connect it with gastro-intestinal tract. We have a gland in the neck in the position in which it has often been recorded in cancer of the stomach.

DR. YOUNG: On which side was it? Because I think it has to be on the left side to be really important.

MISS PAINTER: There is no record.

DR. CABOT: I do not think I can make any other diagnosis. Of course there are a great many facts that we have not got, but on the facts we have I think the most natural supposition is a cancer of the pylorus. He has not had so much vomiting as we should expect with that, but of course not all cases of pyloric cancer do vomit.

On the basis of these facts would you differ from the reasoning that I have set forth?

DR. MEANS: No. I think that it points to malignancy in the upper abdomen. I am very humble in my ability to say where. It might be stomach, it might be elsewhere.

DR. CABOT: I am a little worried in making the diagnosis of cancer of the stomach because he vomited so little in spite of being dehydrated. Most of the dehydrated cases which I have seen have vomited more than this. Again I am not altogether sure of the source of the leucocytosis. We do see leucocytosis in gastric cancer, but I think this is rather more than I am accustomed to see. Yet I do not think of any complication to which he could be subject.

A PHYSICIAN: Do you think the mass in the flank was kidney?

DR. CABOT: I do not know what to say. I am glad you brought it up. We have nothing else pointing to the kidney. He might have a prostate perfectly well, but he doesn't give any history of it. I must ignore it.

DR. YOUNG: If that was primary in the biliary tract we should expect more jaundice.

DR. CABOT: It was mentioned only once in the history. There were clay-colored stools three times.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the stomach with metastasis? Hypostatic pneumonia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Cancer of the pylorus.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Carcinoma of the pancreas with metastases in the retroperitoneal, mesenteric and bronchial lymph glands; in the peritoneum, appendix, adrenals, lungs and vertebrae.

2. *Secondary or terminal lesions*

Dilatation of the bile ducts and gall-bladder.
Purulent bronchitis.
Edema of the lungs.
Hydrothorax, right.

3. *Historical landmarks*

Slight arteriosclerosis.
Chronic pleuritis.

DR. RICHARDSON: The case was one of carcinoma of the pancreas with very unusual metastases.

The appendix presented as a columnar mass 7 cm. long by 8 mm. by 7 mm. The thickened wall was markedly infiltrated with carcinoma cells. Extending up from the appendix, which presented a rough, fibrous-like network on its surface, there was a chain of glands running up into the mesentery. Along the aorta, about the head of the pancreas and out along the body and tail there were large columns of markedly enlarged retroperitoneal glands. They were all infiltrated with new growth tissue,—carcinoma.

The gall-bladder was considerably distended, the bile-ducts a little dilated above the head of the pancreas, but in the region of the pancreas rather small. The head of the pancreas, which was somewhat enlarged and showed areas of new growth tissue, was also surrounded by masses of enlarged glands. The glands and the head of the pancreas pressed upon the common bile duct to some extent. Presumably that is what gave him whatever icterus he had. At the time of necropsy I could make out no definite icterus.

The esophagus, stomach, and intestines were frankly negative. In addition to this invasion of the appendix there were along the coils of the small intestine at the mesenteric insertion small masses of new growth tissue. In the liver there were several very small masses of new growth tissue. In the adrenal on each side there was a small mass of new growth tissue. The lumbar vertebrae showed soft grayish areas which turned out to be carcinoma.

The lungs presented an unusual picture. The bronchial glands were involved, as were the glands running up along the trachea. On the left side a prolongation of these carcinomatous glands extended upward to just above the clavicle.

DR. CABOT: It was on the left, then.

DR. RICHARDSON: There was quite a hydrothorax on the right, 1000 cubic centimeters, only a few cubic centimeters on the left, of thin brownish fairly clear fluid. The pleura showed a very fine roughish network running all over it which in places fused into small nodes. On section this network extended down into the lung tissue and could be traced for varying distances. In places the network strands fused into nodes and streaks and small areas,—a network then of carcinosis.

The heart and circulatory apparatus was out of the picture. There was not much arteriosclerosis.

The head was not examined.

DR. CABOT: Was there any infection of any kind?

DR. RICHARDSON: I meant to say that there was purulent bronchitis, but that was all.

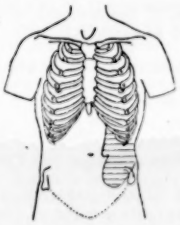
CASE 12052

MEDICAL DEPARTMENT

A Maine woodsman fifty-three years old entered November 20 complaining of difficulty in breathing, large spleen, large glands and swelling of the leg. A brother died of some lung trouble. Twenty years before admission the patient had smallpox. Since his youth he had coughed a little and raised some sputum. He had had "bronchial trouble" for some years. His bowels had always tended to be loose. Twenty years before admission he had some blood in his stools. Five months before admission after feeling as strong and well as usual he felt a sensation of fullness and discomfort in his stomach one evening, and felt a large painless mass, not tender, in the left side of the abdomen. In two weeks the mass began to grow larger and he had constant dull ache lasting for a day or two and disappearing for about the same period. For the past two months the mass had not increased in size. In the middle of July he noticed a swelling on the left side of his

neck, not tender, and he thought not red. Other glands appeared in his neck and groin and grew rapidly. On several occasions they had been larger than they were at present and had spontaneously gone down. About this time he began to feel weak, and since the end of July had been too weak to do any real work. He had grown progressively weaker. In the first part of August he began to have dull pains in the long bones of his legs, more or less periodic and more frequent and severe during the past two to four weeks. Two months before admission he began to have difficulty in breathing when lying down. This had increased, and for the past month or more he had had trouble with breathing while standing or sitting. With this he began to have a cough, starting with a dry hack and developing in a day or two to a harsh productive cough, fairly constant day and night. He sometimes raised very little sputum during the day, sometimes as much as half a pint, yellow and tenacious, never bloody. He coughed so hard that he "broke a blood vessel" in his eye the last of September. For the past month and a half the cough had not been so severe as before. For two months he had had nycturia 0-2. For two weeks he had had hoarseness and sore throat. Two weeks before admission he began to have edema of the ankles which extended in a day or two to the knees. Within the past two weeks he had vomited twice, he thought because of gagging from the catarrh in his head. All through the illness he had had discomfort and gas in the stomach and loss of appetite. He took "arsenic solution" three to ten drops t. i. d. for a month, stopping a month before admission, and benzol ten drops t. i. d. up to four days before admission. His best weight was 225 pounds. He thought it had fallen to 160 during the present illness.

Examination showed a very emaciated man lying in bed with slight cough and difficult breathing. The skin was dry and flabby. The face and back of the neck were very brown. There were many petechial hemorrhages on the chest, back, arms and abdomen, and several small bluish subcutaneous nodules on the chest and neck. There was injection of the nasal side of both conjunctivae (subconjunctival hemorrhage ?). The throat was red, the tonsils hypertrophied. The sublingual tonsils were very large. There was necrosis of part of the left tonsil. The mouth was dry, with considerable slime and mucus. The chains of anterior cervical glands and the supraclavicular, axillary and inguinal glands were all enlarged to two or three centimeters in size, firm, not adherent. The finger nails were bluish. The chest was flat, the spaces prominent. There was very little expansion. The lungs showed dullness, higher on the left. There were fine crackles at the right apex and here and there throughout the whole lung and definite friction rub under the right scapula. There were scattered bubbling râles and squeaks. The apex impulse of the heart was in the fifth space. The left border of dullness corresponded with the midclavicular line, 10 cm. from midsternum. The right border of dullness was 3 cm., the supracardiac dullness 7 cm. The sounds were faint and poor in quality. The radials were thickened, the radials and brachials tortuous. The blood pressure was 120/70. The abdomen showed prominence of the left side and increased rigidity on the right side, with general dullness except at the umbilicus. The spleen was as shown in the diagram, irregular, firm and tender, with an accessory mass toward



the top of the spleen just under the ribs. The liver edge was not felt because of rigidity. The prostate was enlarged and firm. There was a questionable tender mass high in the rectum against the sacrum, outside the gut. There was edema of the hands and marked edema of the legs and feet from the knees down. The pupils were irregular, with sluggish reactions to light and distance. The fundi were negative. The knee-jerks were not obtained.

The temperature was 97.3° to 99.8° by rectum, the pulse 60 to 120, the respiration normal. The urine was normal in amount on the one occasion recorded, specific gravity 1.023 to 1.018, the slightest possible trace of albumin at one of two examinations, one to occasional leucocytes per high power field at both examinations, one red blood corpuscle at one; no Bence-Jones protein. The blood showed 17,200 leucocytes, 56 per cent. polynuclears, 4.5 per cent. young polynuclears, no eosinophils or basophils, one mononuclear, 11.5 per cent. atypical mononuclears, 0.5 per cent. large lymphocytes, 9.5 per cent. small lymphocytes, 4 per cent. atypical lymphocytes, 13 per cent. unclassified cells tending on the whole to the monocytic series. The polynuclears had coarsely granular cytoplasms, some with vacuoles; some of the atypical mononuclears had nucleoli. The hemoglobin was 50 per cent., the reds 2,450,000, showing marked achromia, great variation in size and shape, diffuse and punctate basophilia; 12 nucleated reds were seen in counting 200 leucocytes; large forms predominated. The platelets were markedly decreased. A Wassermann was negative. The non-protein nitrogen was 80. The bleeding

time was 4 minutes, the coagulation time 6 minutes in one tube, 9 minutes in four others, including one with calcium chloride. The stools were tarry black, with very strongly positive guaiac and questionable macroscopic blood. X-ray films of the long bones and skull made post-mortem were negative.

The night of November 21 the patient complained of pain and much difficulty in breathing. He was given small doses of morphia and had a fair night. The following morning he was a great deal weaker and somewhat hazy mentally. About noon he went into coma. He failed rapidly, and that afternoon died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

1. None of the events previous to five months ago had I suppose any bearing on the present illness. (2.) He then became aware of his enlarged spleen, as in my experience most people with a very big spleen do nearly always feel it themselves. This feeling his spleen is the first event in his history.

3. I would bet, without knowing anything about it, that his weakness corresponded with the development of an anemia. The enlargement of the spleen and glands and the changes in the blood that may or may not go with it do not ordinarily affect the general health much until the bone marrow begins to be affected and the red cells to be pushed out by the growth of abnormal tissue there.

4. It seems likely that the "dull pains in the long bones of his legs" were suggested to him by the man who took the history, because he was thinking about his bone marrow.

5. The natural speculation is that this cough proceeds from glands in the region of the primary bronchi or trachea pressing on the bronchi or trachea. He has so many glands outside that there are undoubtedly some inside him, and this is the sort of cough which they might produce.

6. Benzol sounds like a treatment for leukemia. The things we naturally think of here are leukemia and Hodgkin's disease. Of course the disease conceivably might be syphilis, but it is not very likely without any history or lesions of it obvious to the patient himself. Then of course there are other types of malignant disease. I say other types of "malignant disease" because I think leukemia should be classed as malignant disease. Leukemia seems the most probable.

NOTES ON THE PHYSICAL EXAMINATION

1. There is dullness at both lung bases, due I suppose to the enlarged liver and spleen, and higher on the left because the spleen is bigger than the liver.

2. Tuberculosis is a possible, not very common, complication of leukemia and Hodgkin's disease, and has of course to be considered here, evidence being sought for in the sputum and in the constancy of these pulmonary signs. My guess is that it is not tuberculosis, however.

3. Unless this man has had leukemia for a long time there is no reason why his heart should show any change. With a chronic leukemia we do sometimes get slight hypertrophy, I suppose due to the increased viscosity of the blood.

4. This is not the blood of typical leukemia. All sorts of terms are used, most of which seem to me rather meaningless; still I think I can identify them enough to say this is not leukemia.

DIFFERENTIAL DIAGNOSIS

I think we have to say Hodgkin's disease, or malignant lymphoma, chiefly on the basis of the blood examination. He has 17,200 leucocytes with about 60 per cent. polynuclears. If he had had X-ray treatment—which I understand he had not had—that blood might be consistent with leukemia. If he had had tremendously high doses of arsenic it might be consistent. With infectious diseases such as erysipelas it might come. But without those things I think we have to say this is Hodgkin's, with as I anticipated a very marked secondary anemia, which I suppose was the cause of his weakness.

Post mortem there ought to be a big spleen crammed with lymphoid tissue, big glands in the mesenteric and retroperitoneal region and around the trachea as well as those visible externally. The liver may well show some infiltration of the same sort. Other than that I do not see anything to say, unless he had a terminal infection, which he might well have had, a pneumonia being a definite suggestion, but with no definite evidence.

In a case like this I always wish that I could see a blood slide myself. Students use such queer terms, and I think very poor terms, nowadays, that I find it very hard to interpret them. But sixty per cent. polynuclears, which I take it is about what he had, is not compatible with any leukemia that I know.

DR. LINCOLN DAVIS: Isn't the enlarged spleen rather unusual in Hodgkin's—as large as this?

DR. CABOT: No, I don't think we could say that it is unusual.

DR. RICHARDSON: Did he bleed from the intestine?

DR. CABOT: Yes, he did.

DR. RICHARDSON: Was there any evidence of any stomach disturbance?

DR. CABOT: No, nothing more than his anemia would account for.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Malignant lymphoma.
Purpura hemorrhagica.

DR. RICHARD C. CABOT'S DIAGNOSIS

Malignant lymphoma.

Terminal pneumonia?
Purpura.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Malignant lymphoma involving the spleen, stomach, intestines, and the mesenteric, retroperitoneal, bronchial, mediastinal, tracheal, axillary, supraclavicular and inguinal lymph glands.

2. *Secondary or terminal lesions*

Purulent bronchitis.
Edema of the lungs.
Hydrothorax, serosanguineous, left.
Purpura hemorrhagica.

3. *Historical landmarks*

Slightly defective closure of the foramen ovale.

DR. RICHARDSON: We were not permitted to examine the head. I think there was some question about the skull.

DR. CABOT: They were looking for metastases I think, and did not find anything.

A PHYSICIAN: Myeloma perhaps?

DR. CABOT: Yes, that is what I suppose.

DR. RICHARDSON: The skin showed purpura hemorrhagica. The abdomen was not distended, the walls were soft. There was a small amount of subcutaneous fat. In the peritoneal cavity we found a small amount of pale clear fluid. It was otherwise negative. The esophagus was negative. The stomach was of fair size, not distended, the mucosa flat and pale; but in many places there were smaller and larger rather thick smooth plaques on cross section resting in the mucosa and submucosa,—plaques of malignant lymphoma. The duodenum was negative. But beginning in the jejunum and extening down to the ileocecal valve there were many plaques in the mucosa and in the region of the Peyer's patches. In places they were gathered in irregular groups along strips of the intestine. Some of them looked not unlike the buttons of hog cholera, and others like the plaques in typhoid fever before ulceration. There were some plaques in the large intestine. The mesenteric and retroperitoneal glands presented as huge mound-like masses extending along the aorta and up around the pancreas,—malignant lymphoma.

In the pleural cavity there was on the right side a small amount of reddish tinged fluid, but on the left side 1500 c.c. of thin slightly bloody fluid; that is, a serosanguineous hydrothorax on the left.

The primary bronchi and their first branches showed considerable purulent bronchitis, but beyond that point the bronchi were negative. It seemed to be confined to that region, and in that region of course there were huge masses of bronchial glands, lymphomatous, which extended upward to the clavicular region on each side. The thyroid was negative, and there was no evidence of thymic tissue. The axillary, supraclavicular and inguinal glands were markedly involved.

The lungs showed edema and scattered over the pleura numerous hemorrhagic areas.

The heart was negative. There was no arteriosclerosis of any importance.

The liver was large, but showed no definite changes.. The spleen weighed 1906 grams, greatly enlarged and infiltrated with atypical lymphoid cells.

This is a case of very extensive and unusual involvement, that is, to have them all come together.

DR. CABOT: He undoubtedly would have got some X-ray treatment, wouldn't he, if he had not gone down so fast?

DR. HOLMES: Yes. But in these extremely anemic cases running a temperature we get poor results. They are too far advanced.

DR. CABOT: But if he had been seen a little earlier you could probably have made him live a little longer?

DR. HOLMES: I don't know. We could have made him a good deal more comfortable. According to the latest statistics of 400 cases we have not prolonged life much. The gastro-intestinal changes are late manifestations. We could not have done much in his case.

CASE 12053

SURGICAL DEPARTMENT

A married woman fifty-five years old entered October 6 complaining of menorrhagia. She had always been well. She had frequent sore throats, and before tonsillectomy twenty-five years ago she had quinsy sore throat. She thought she had some palpitation thirteen years before admission. She had cough with a good deal of thick tenacious sputum every winter. Nine years before admission she passed the menopause uneventfully except for a few periods of dizziness. Three months before admission she passed a tablespoonful of fresh blood in a stool. She denied hemorrhoids. She urinated once at night and had some polyuria. She drank "two quarts" of water a day.

The middle of August she was alarmed by flowing of bright red blood for three days. The first day she had slight pain in the right flank going through to the back, just as she used to have when she menstruated. The second and third days she had no pain. Twenty days before admission the flowing of bright red blood began again and continued constantly until seven days before admission. There were no clots and no pain.

Examination showed a very obese woman in excellent general condition. The breath suggested acetone. The abdomen was large, dependent, and soft. There was slight tenderness over the gall-bladder region. The heart and lungs showed no abnormalities. The apex impulse was not found. The blood pressure

was 150/80. Pelvic examination showed the vagina and cervix normal in contour and appearance, the cervix nulliparous. The fundus was barely felt and suggested enlargement. There was slight tenderness over the fundus on bimanual examination. The vaults were clear. The rest of the examination, including the rectal examination, was negative.

Before operation the temperature and respirations were normal, the pulse 120 to 88. The urine was negative; specific gravity not recorded. The blood is not recorded. A Wassermann was negative.

October 8 operation was done. Three hours after it the patient showed a regular pulse of 140. The face and extremities were cold. She was given a subpectoral of 2,000 c.c. of 2½ per cent. glucose. Six hours after the operation she was entirely out of ether. The pulse was of good quality and 130. At 9 p. m. (the operation was finished at 1:10 p. m.) she was warmer. The pulse was weak, the rate 106. She was wide awake but a little irrational. At 11 p. m. she became suddenly extremely restless, cyanotic, cold and sweating. She was given a quarter grain of morphine and put in shock position. There was no marked dullness in the flanks. The condition became rapidly worse. At half past eleven she died.

Discussion

BY EDWARD L. YOUNG, JR., M.D.

The second flowing was a month after her first sight of blood. The record does not mention any abnormal odor. Of course in a woman who is beyond the menopause the chances according to figures are about four to one that the appearance of blood is due to a malignant disease where there is no obvious fibroid. Of course there can be polyp or some other benign condition which is in the background, and inasmuch as examination shows that the bleeding comes from the uterine cavity the only thing at all safe is the further knowledge to be gained by curetting.

If she were younger abnormal bleeding might be due to a good many conditions which are not malignant. But at this age it is always suspicious and does demand further investigation. I assume that the first thing was an ether examination and curetting, and the fact that she went on as she did and died very soon would suggest that on curetting they found malignant disease so definitely that there was nothing to do but go ahead with an immediate hysterectomy.

Of course today cancer of the cervix is rarely operated, because in the last few years it has come to be felt very definitely that that is one situation where radium does as well as the surgeon and with considerably less risk. But carcinoma of the fundus is not so easily or so effectively treated by radium, and is effectively treated by operation. It metastasizes late, and the chance of getting a cure from surgery is very good. I do not see anything else that we can assume was present or was done.

Dr. Cabot: If you did not know that this patient had died would you make the same diagnosis?

Dr. Young: My discussion would be exactly the same up to the point of saying curetting for study. Of course the fact that we know she died suggests something more than curetting, because the chance of dying from that is very slight.

Dr. Young's Pre-operative Diagnosis

Malignant disease of the uterus?
Polyp?

Pre-operative Diagnosis

Fibroids of the uterus.

Operation

Under ether anesthesia the usual low abdominal midline incision was made and spread with a self-retaining retractor. The patient was too obese to be able to anesthetize in Trendelenburg position. It was very difficult to get a good exposure of the field on account of the coils of small intestine. The uterus was slightly enlarged. There was a soft fibroid about two inches in diameter arising low down in the cervix on the left side. Both tubes and ovaries were involved in rather small masses of chronic inflammation. The uterus was pulled up as well as possible. The two ovaries and tubes were dissected free with considerable difficulty and the uterus was dissected off the bladder and rectum with great care. It could not be pulled up to get a very good exposure of the uterine arteries, both of which bled considerably. The bleeding was controlled by transfixing stitch ligatures. The uterus was then cut off above the cervix. There was considerable bleeding at this point also. The peritoneum was brought together over the cervical stump after the bleeding had been controlled and the pelvis appeared to be fairly dry. The wound was closed in the usual manner.

Pathological Report

A nodular uterus the size of a baseball, amputated through the cervix. On section it contains a spherical white fibrous tumor 4 cm. in greatest diameter with several smaller ones. The cavity is dilated and contains a soft polypoid growth attached to the endometrium by a broad pedicle at the fundus. Both oviducts are separate, swollen, tortuous, and covered with an inflammatory membrane. One small ovary is attached.

Microscopic examination of the large uterine tumor shows degenerate myoma. The endometrium polyp is adenomatous. The oviduct has a dilated lumen. The mucous membrane is without prominent folds. The walls have an abundance of smooth muscle. They

contain collections of wandering cell infiltration with hemorrhage.

Multiple fibromyomas.
Adenomatous polyp.
Chronic salpingitis.

FURTHER DISCUSSION

The description before operation as being slightly enlarged was not enough on paper to suggest the diagnosis of fibroid. Of course that type of bleeding can come and often does come from a fibroid. They did not curette. They did not consider a carcinoma at all.

DR. CABOT: I guess they had some information they did not give us.

DR. YOUNG: The impression they got from the patient may have been a little different from what we get from the story.

I think the polypoid growth was the cause of bleeding and not the fibroid. With the description we read of a "very obese" woman and a fundus "barely felt" it did not seem fair to make an absolute diagnosis of fibroid.

They were wondering if they had a severe hemorrhage. That and the shock of operation seem to be the only obvious causes of death. Dr. Richardson often tells us that there was no cause of death that he can find, and when the death comes as soon as this we have to say shock. Of course pelvic operation does not cause the same amount of shock that operations higher up in the abdominal cavity cause. It is surprising the amount of pulling and tearing that can be done in the pelvis without the patient showing it. Still, according to the account of the operation she lost a lot of blood, and the combination may be the whole story. Whether or not anything else was found we will leave to Dr. Richardson. So far as we were told anything about it she was in excellent general condition.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Fibromyoma of the uterus.
Hydrosalpinx.
Obesity with myocardial degeneration, with failure.
Hysterectomy.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Malignant disease of the uterus?
Hemorrhage.
Operative shock.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

(Multiple fibromyomas.)
(Adenomatous polyp.)
(Chronic salpingitis.)

2. *Secondary or terminal lesions*

Luetic aortitis, ascending and descending thoracic portions of the aorta.
Dilatation of the heart.
Hysterectomy.
Slight hemorrhage into the peritoneal cavity.

3. *Historical landmarks*

Chronic pleuritis, right.
Slight chronic perihepatitis.
Slight chronic pericholecystitis.

DR. RICHARDSON: She was a very stout woman. The head was not examined. There was no definite distension of the abdomen. The peritoneal cavity however contained a small amount of fluid blood and much blood clot. The peritoneum generally was blood-stained, and over the superior surface of the liver there was an extensive layer of blood clot. The marginal tissues of the wound showed blood staining, and there was blood staining in the region of the pelvic tissues. Anatomically we should say that there was hemorrhage into the peritoneal cavity.

DR. YOUNG: Was there much blood?

DR. RICHARDSON: Not a great amount at the time of necropsy, but when we consider that she had been bleeding and did bleed a lot at operation it is of greater significance.

The lungs showed a moderate amount of edema.

The heart weighed 330 grams, a full sized heart. The myocardium was a little flabby. There was a moderate amount of dilatation on the left and a considerable amount on the right; that is, the heart was dilated. The valves were frankly negative, the coronaries free and negative. The aorta, beginning in the ascending thoracic and extending to about the lower end of the arch, showed a moderate amount of luetic aortitis.

The uterus and adnexa were wanting, except that a stump of the uterus was present.

DR. YOUNG: What was the cause of death?

DR. RICHARDSON: From the anatomical picture there must have been blood loss.

DR. YOUNG: Blood loss plus shock.

DR. RICHARDSON: Yes.

DR. CABOT: If there were before operation no more facts we have not got, if our impression was that of the operating surgeon, do you see any sufficient reason for operating at all?

DR. YOUNG: I should not have dared not to do curetting. Under ether we can get a much better idea of whether there is anything in the uterus or not. I do not believe it is possible for anyone to be able to tell accurately the presence or absence of a fibroid as small as that in a woman as fat as that. So we should have to look for the endometrium as the cause.

DR. CABOT: If they had curetted they would probably have got that polyp, wouldn't they?

DR. YOUNG: Yes. But they probably would have been still further confirmed in their belief that there was a fibroid.

A PHYSICIAN: Do you think that luetic aortitis had anything to do with the death?

DR. YOUNG: I do not think we have been given any idea that it had. Do you, Dr. Richardson?

DR. RICHARDSON: No.

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A STARTLING MENACE

PROBABLY few matters involving the responsibilities of society at large are so imperfectly comprehended or indifferently regarded as the problems of sub-normal mentality. We are growing more and more uneasy because of the prevalence of crime and the inability of the law to meet the wishes of the public in its suppression but aside from expressions of distrust of the legal machinery and fear of loss and suffering resulting from the acts of the mental variant very few are inspired to take action.

Most of the people in Massachusetts probably do not know that the state is spending over seven million dollars a year for the care of its insane or the sad fact that thousands of their unfortunates are committed to state institutions each year. It is still more ominous that the expense is increasing and the number of the mentally ill is growing larger. In 1880 this state was caring for 40,942 and in 1923 the number had become 267,617. The rate during this period increased from 81.6 to 241.8 per 100,000 of the general population.

Crime and insanity, which are linked together in many cases, impose a stupendous burden on society and call for preventive measures which seem to be of greater importance than any other public health activity. To many these problems will not be regarded as a health matter at all, but to psychiatrists the criminal is a victim of a disordered mind as well as the manic depressive type of mental disease which may not have led to so-called criminal behavior.

It is true that the Department of Mental Diseases through its Division of Mental Hygiene has been especially active at work since 1922 trying to instruct the public. In this connection we quote from an article in the *Monthly Bulletin* of the Massachusetts Society for Mental Hygiene for January 1926:

"It is of interest to note that Massachusetts was the first State in the Union to recognize the importance of investigating some of the underlying factors which are responsible for mental disease, and to take the necessary steps to organize and develop a division whose function would be primarily one of research within one of its already recognized departments.

The Division of Mental Hygiene has been fortunate in securing the services of a number of physicians who are unusually well qualified to direct research in mental disease and defect. These physicians have given most generously of their time and knowledge without compensation, and it has only been through their most hearty and unselfish coöperation that it has been possible for the Division to exist and contribute to the solution of the many baffling problems.

Syphilis, as related to mental disease, has been and still is being carefully studied by Dr. H. C. Solomon of the Boston Psychopathic Hospital. Dr. Abraham Myerson and Dr. Oscar J. Raeder have both been working on the problem of mental deficiency. Dementia præcox, which comprises nearly fifty per cent. of the residents of our state institutions, has been under investigation by Dr. Myrtle Canavan and her assistants. Mental disease and its relation to crime has been studied by Dr. A. Warren Stearns. Epilepsy, as a disease, has been investigated by the Director of the Division. The Division of Mental Hygiene has subsidized, in a limited way to be sure, the assistants and technicians working under these physicians."

Our great difficulty lies, apparently, in the unresponsive attitude of physicians and other equally intelligent persons. We are awakening slowly and to a very limited extent. The majority of the people of the Commonwealth are more concerned in the work of courts, police departments and hospitals for the insane because these activities are obvious, but unless the most intensive scientific measures are put in activity we shall be trying to deal with end results of mental disease rather than with preventive measures. We long ago came to realize that tuberculosis must be dealt with before it had developed, by building up resistance and bodily health. Crime and insanity must be approached in the same way.

We are urging health examinations. Men-

tal health examinations would be far more productive in improving society and adding to happiness if followed up by the necessary corrective measures. Physical illness is, we believe, less of a calamity than mental disease from personal, financial and social considerations.

We need to encourage and sustain all efforts now in operation and under consideration in the most liberal way, but the great thing needed is a Moses to lead us out of the bondage of ignorance, superstition and indifference.

Much is being done, but brilliant results at all comparable with the control of smallpox, diphtheria, et al, must depend upon universal awakening.

THE BOSTON MEDICAL LIBRARY FIFTIETH ANNIVERSARY

THE exercises in celebration of this Anniversary were held on Tuesday evening, January 19, in the large hall of the library, which was well filled for the occasion with members and invited guests. After an Address of Welcome by the President, Dr. George H. Monks, and recognition by him of the services of the friends of the Library, medical and others, who had enabled it to make its noteworthy progress during a career of half a century, and after acknowledging the great service which the officers and early members had rendered, especially Dr. Chadwick, he called on Dr. J. W. Farlow, Librarian for twenty years following Dr. Chadwick.

Dr. Farlow's subject was, "Fifty Years of the Library." He spoke of the conditions which led to the need of a combination of the scattered medical books and journals in Boston and vicinity and of how the difficult task of bringing them together was inaugurated and carried into execution by Dr. Chadwick, then a young man of thirty, with the active help of devoted friends. The first rooms occupied, at No. 5 Hamilton Place, were soon outgrown, and a move was made to No. 19 Boylston Place, well remembered by the older members as a convenient situation,—about its only recommendation. This was soon crowded to such an extent that many of the books and journals had to be sent to storage. A discouraging campaign, of many years duration, was at last successful and the present building was erected and dedicated on January 12, 1901. He told of the various activities of the Library, of its receiving the medical collections of most of the public libraries in and near Boston, of the service to the public and the free use of the Library's resources by the community whether members of the Library or not, and whether inhabitants of Boston or elsewhere. He acknowledged the great credit that was due to the Assistant Librarian, Mr. James F. Ballard, for his expert knowledge of books and periodicals, his contributions to medical classification and bibliography, in fact, to the whole field of medical library work. The embarrassing growth and importance of the collections, including all departments of medicine, were touched upon and the need of larger accommodations and increased funds to enable the Library to fulfill its highest function to the medical profession and the public.

The President then spoke of the world-wide medical and educational services of the Rockefeller Foundation, of its invaluable work in all parts of the world and introduced its President, Dr. George E. Vincent, the subject of whose address was, "The Social Memory."

He began by saying, "We are gathered here tonight because in a Vienna restaurant, in June, 1867, an American medical student advised an aimless youth from Boston to be a doctor." This reference was to Dr. Chadwick and the influence which induced him to study medicine, with the outcome that, in 1875, he was the most active agent in starting this Library, one of the most useful institutions in Boston. Dr. Vincent went on to say that a library has been called a storehouse, a university for self-educating students and quoted Osler as saying he could not have brought forth his fat volumes, "but for the pabulum furnished thru the placental circulation of a library." Libraries and museums are an invaluable part of a world memory and the quality of a city's life may be tested by the number and use of these institutions.

Books, journals and pamphlets accumulate at an appalling rate. In 1923 the world's output of medical books was about 3,000. Since 1880 the Surgeon-General's Library has catalogued 1,400,000 articles and 330,000 books and monograph titles. One would almost rather count the leaves of Vallombrosa. There are books written by persons who suffer from a psychological "complete recall," no detail is omitted, however insignificant or unimportant. Many bibliographies are printed merely to advertise the writer, and although it is the proper duty of the library to house these productions of little or no value, it is the function of the librarian to select and classify its material in such a way as to separate the good from the worthless and thus save the time of the readers. The stacks should not be weeded out too radically. The buildings must expand if its collections are living, growing organisms. This Library has outgrown two buildings and is pressing on the limits of a third.

Those who cultivate menory at the expense of imagination and experiment become conventional, lack initiative and follow routine and are the *victims* of social memory instead of using it as a guide for change and progress. The laboratory is a corrective of the library, and the solution of medical problems often compels a revision of the social memory. On the other hand, the individual or group who works with little or no reference to books has serious lim-

itations, waste of time or unnecessary duplication of effort. Familiarity with the past induces a becoming modesty in medical men of the present.

The Boston Medical Library has established a reputation as an initiating memory for its members, and by its great care in preserving documents relating to the near and distant past, it creates a background in the training of physicians, acquaints them with the great personalities of the past and incites a desire to emulate their virtues and devotion. In the absence of such memories no group can achieve character and personality.

This Library has an influence wider than the boundaries of city, state or country. It is an important station in an international system which links Boston with the large cities of the world whose libraries form the resources of the world's menory.

All honor to the Boston Medical Library for its first half century devoted to the increase and diffusion of knowledge and the upbuilding of the medical profession. May the next fifty years witness steady progress and even more notable achievement.

This address, of which the above is merely a short and imperfect abstract, was listened to by a delighted audience which had the added advantage of hearing it spoken with a charm of delivery, of good humor, sympathy, and understanding of the problems of a medical library that brought regret to all when the end was reached. At its close, the audience adjourned to Holmes Hall to look at the large and interesting exhibition of pictures and documents relating to the early days of the Library, its founders and its outgrown homes. There were also books and manuscripts, from early parchments and the first printed medical book thru the important classics to the present time, as well as a number notable for their bindings and illustrations. Dr. Malcolm Storer had arranged an unusual display of medical medals; there was a table covered with Holmesiana, one devoted to souvenirs of Dr. William Rimmer and still others with extra-illustrated books and record books of Societies no longer in existence. The fact that the room in which the exhibition was held is the main reading room of the Library made impossible the continuation of the exhibition beyond the evening of the meeting, much to the disappointment of many who had hoped to have other opportunities to examine the objects of great interest.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

KIEFER, EVERETT D., A. B. Interne at the New England Deaconess Hospital.

BRIGHAM, F. GORHAM, B.S.; M.D. Harvard Medical School 1909; Instructor, Harvard Graduate School of Medicine; Visiting Physician, Out-Patient Department, Massachusetts General Hospital and New England Deaconess Hospital; and

WHEELER, ROY R., M.D. Harvard Medical School 1920; Visiting Physician, Out-Patient Department Massachusetts General Hospital. They present a paper under the title of "Embolic Gangrene of the Extremities in Pneumonia. A Report of a Case Occurring in Diabetic Coma with an Observation on the Sugar Content of Cerebrospinal Fluid During Insulin Shock," page 191.

RABINOWITCH, I. M., M.D. McGill University Faculty of Medicine 1907; Assistant Professor of Medicine, McGill University; Director, Department of Medicine, Montreal General Hospital. His subject is "The Vital Capacity in Hyperthyroidism," page 199.

WYMAN, EDWIN T., M.D. Tufts College Medical School 1911; Instructor in Pediatrics, Harvard Medical School; Assistant Visiting Physician to Children's and Infants' Hospitals. His subjects are 1. "Ultra-Violet Therapy in Pediatries" and 2. "A Room for Treatment with Ultra-Violet Rays," pages 202 and 205.

LEGISLATIVE NOTES

THE bill presented by Dr. George M. Kline, Senate 87, amending the law relative to voluntary patients in institutions for the care of the insane as drafted reads as follows:

Section eighty-six of chapter one hundred and twenty-three of the General Laws is hereby amended by striking out, beginning in the sixth line, the words "who, being mentally competent, makes written application therefor" and inserting in place thereof:—who makes written application therefor and whose mental condition is such as to render him competent to make the application,—so as to read as follows:—*Section 86.* The trustees, superintendent or manager of any institution to which an insane person, a dipsomaniac, an inebriate, or one addicted to the intemperate use of narcotics or stimulants may be committed, and, in the case of Gardner state colony, when so authorized by the department, may receive and detain therein as a boarder and patient any person who is desirous of submitting himself to treatment, and who makes written application therefor and whose mental condition is such as to render him competent to make the application; and any such person who desires so to submit himself for treatment may make such written application. No such person shall be detained more than three days after having given written notice of his intention or desire to leave the institution.

The Massachusetts Homeopathic Hospital in House 490 has petitioned for an extension of the right to hold property up to the amount of ten million dollars.

The text of House 998 relating to the invest-

igation of the work and equipment of medical schools is as follows:

SECTION 1. The Department of Education shall, during each calendar year, make such investigations and inquiries as it deems proper into the equipment of and instructions given in Medical Schools whose graduates file applications with the Board of Registration in Medicine for examination for registration as practitioners of medicine. The Department of Education may call upon the Board of Registration in Medicine for assistance in these investigations and inquiries. The Board of Education may make such recommendations as it deems fit to the Dean of any Medical School regarding the equipment and instruction given in such schools; may make special reports to the Governor, and shall include in the annual report of the Department such findings and recommendations as in its judgment may bring about necessary improvements in any Medical School.

An important bill, House 476, should meet with no opposition for much harm has resulted from the omission of proper labels on some containers. It reads as follows:

SECTION 1. On and after the first day of January, nineteen hundred and twenty-six, it shall be unlawful for any person or co-partnership or corporation to sell at wholesale or retail within this state any caustic acids or caustic alkalies or preparations containing such acids or alkalies intended for household use, including preparations ordinarily described as or called "lye," without affixing to the bottle, box, vessel, sack or package containing the same a label printed or plainly written containing the name of the article, the name and place of business of the manufacturer, seller or distributor of such household acids, alkalies or preparations thereof, and in addition the word "Poison," which shall conspicuously appear therein in red capital letters not less than twenty-four point size or which shall be affixed thereto as a sticker conspicuously placed.

SECTION 2. The word "caustic" shall within the intent and purpose of this act be construed to mean any acids or alkalies in liquid or powdered form of preparations thereof, or containing free or chemically unneutralized hydrochloric acid in a concentration of ten per centum, or sulphuric acid in a concentration of ten per centum, or nitric acid in a concentration of five per centum, or carbolic acid (phenol) in a concentration of five per centum, or oxalic acid in a concentration of ten per centum, or acetic acid in a concentration of twenty per centum, or hyperchlorous acid (calex chlorinata bleaching powder or chloride of lime) in a concentration of one hundred per centum, or potassium hydrate (caustic potash Vienna paste pearlash potassa carbonas) in a concentration of ten per centum, or sodium hydrate caustic soda (concentrated lye) in a concentration of five per centum.

SECTION 3. Any person or co-partnership or corporation violating section one of this act is guilty of a misdemeanor, and upon conviction shall be sentenced to pay a fine of not more than one hundred dollars and the costs of prosecution, or imprisonment of not more than ninety days.

SECTION 4. This act shall take effect upon its passage and approval by the governor.

An abstract of House 708 is herewith presented:

THIS Bill which if enacted into Law will make legal the work of Chiropractic and provide for a Board of Registration of Chiropractors.

This bill has not up to this time been printed. We were given the privilege of having a copy made. Following is an abstract:

Section 1. Three persons shall be appointed who shall constitute *a Board of Chiropractic Examination and Registration.* These persons shall be graduates of a legally chartered chiropractic school, college or university having the power to confer degrees in chiropractic but no two shall represent the same chiropractic school, and no one shall be financially interested in any such institution and must not be affiliated with any other methods of healing as now regulated in this State. The usual provisions for filling vacancies are stated.

Section 2. In this section there are provisions for meetings, election of chairman and secretary. The secretary shall give a bond of $1000. Records must be kept and the right to make rules and regulations not inconsistent with law conferred on this board. Records shall be open to public inspection.

Section 3. The usual methods of application for registration are set forth; with this a fee of $25 must be deposited. Applicants must be 21 or over, present a diploma from a high school, college or university *or otherwise satisfy the board of sufficient prior academic education.* A diploma granted by a legally chartered Chiropractic School or university in good standing must be submitted. This diploma must show that it was granted on personal attendance of the applicant and completion of a course of 3 school years of not less than 6 months each and of a total of 2700 school hours. A certificate of moral character signed by a reputable resident of this State must be submitted.

Section 4. Provides for examination in the subjects of anatomy, physiology, symptomatology, hygiene, sanitation, chemistry, histology, pathology, chiropractic analysis and the principles and practice of chiropractic as taught in reputable chiropractic schools, etc.

A waiver is introduced permitting registration of any one who has practiced chiropractic for five years in this State next prior to the passage of this act, or any person having a diploma from a legally chartered chiropractic college, school, etc., which institution was in good standing at the time of the granting of this diploma who has been in practice in this State for 3 years next prior to the passage of the act on payment of a fee of $10 without examination. Applicants for registration under the provision must apply within 90 days. Provision is made for reciprocal licensing power accorded those who have been registered under standards equal to those specified in this bill, but this is discretionary.

Section 5. Certificates of registration must be displayed in the principal place of business. Holders of certificates of registration under this act are not permitted to practice obstetrics *so far as this relates to parturition* nor to admin-

ister drugs or perform surgical operations with the use of instruments *except as now allowed by statute.*

Section 6. Exemptions apply to legally licensed physicians, surgeons, dentists, osteopaths, nurses, masseurs or commissioned officers in the United States Army or Public Health Service and to gratuitous service.

Section 7. Provides for penalties for those who practice Chiropractic without being registered or who employ fraud in securing a diploma or license or who abet these forms of fraud or use any designation which may induce belief that the person using such terms is practicing chiropractic without proper authority. Fines of $50 to $500 or imprisonment for not less than 30 days or not more than one year or both.

Registered chiropractors of other States may come here for consultation if registered in the State from which they come, provided that the standards are equal to those of this State.

Section 8. The compensation of members of the board shall be $15 for each day spent in the discharge of official duties in addition to all necessary traveling expenses. Further provision is made for books, stationery, etc. The amount so paid shall not exceed the revenue received from fees.

Section 9. The board shall investigate complaints and violations of the law which shall be brought to the attention of proper officers. Revocation of certificates of registration are provided for after conviction of a crime in course of professional business or for fraud in connection with securing registration.

Section 10. Provides for an Annual report.

Section 11. Requires observance of laws relating to the reporting of contagious diseases and deaths.

Section 12. Chiropractic is defined: The system, method or science commonly known as chiropractic or the practice of chiropractic is defined to be the science of palpating and adjusting the segments and articulations of the human spinal column by hand only. This definition is inclusive and any and all other methods are hereby declared not to be the practice of medicine, surgery, dentistry and osteopathy within the meaning of Chapter 112 of the General Laws of Massachusetts, and all acts additional thereto and amendatory thereof.

Section 13. Provides for local registration with the clerk of a town where one locates, and provides for fines of clerks of towns who fail to comply with the provisions of this section, and also for fines for fraud in filing a certificate.

MISCELLANY

THE MEDICAL CENTER IN NEW YORK

A YEAR of construction work finds the vision of a great Medical Center in New York approaching realization. The general problems connected with the launching of such a project are in hand and building progress is satisfactory.

Ground was broken for the first unit of the Medical Center on January 31st, 1925. This was the combined building which will house Presbyterian Hospital, Sloane Hospital for Women and the College of Physicians and Surgeons. It will cost upwards of $10,000,000.

In spite of difficult excavation, the sub-surface formation being mostly limestone, the construction of this building has proceeded to the point where sixteen tiers of steel are in place for the twenty-two stories of the hospital part of the building. Two floors and part of a third will be utilized by Sloane Hospital.

Adjoining the Presbyterian-Sloane combined hospital is the Harkness Private Patient Pavilion, a $1,500,000 structure donated by Mrs. Stephen V. Harkness and her son Edward S. Harkness. Work on the Pavilion has proceeded rapidly and its outer shell is practically finished.

The medical college will have thirteen full stories and a tower. It will be connected with the hospital by an axis of the same height. Steel has been erected for the first four floors where the Departments of Administration, Public Health, Physiology and Bio-Chemistry will be located.

Wide interest is being displayed in the New York State Psychiatric Institute and Hospital which will be one of the institutions of the Center. It will be used by the State for research in the causes and treatment of mental disease. Plans drawn in the State Architect's office have been approved and specifications for bidding are being completed. Only cases of special scientific interest will be housed in the Psychiatric Institute, others being sent to the regular State Hospitals.

The Vanderbilt Clinic, now at Sixtieth street and Tenth ave., will be a part of the Medical Center Out-Patient Department, excavation for which has begun.

Sketch plans are being developed for the Neurological Institute, another hospital of the Medical Center. The Institute is now located on East Sixty-seventh street. A building program is being developed for Babies Hospital which will also move to the Center.

It is expected that the institutions of the Medical Center will be in operation late next year.

THE COMMONWEALTH FUND

GIFTS for scientific, educational, and humanitarian work totalling $1,339,000, made by the Commonwealth Fund during the fiscal year ending September 30, 1925, were announced recently in the seventh annual report submitted to

the Board of Directors by the General Director, Barry C. Smith.

The endowment of the Fund, which was established in 1918 by gift of Mrs. Stephen V. Harkness, was $27,761,000 at the end of the year reviewed in the report, but recent donations from Mrs. Harkness have increased that total by $11,000,000.

Child welfare has been one of the chief interests of the Fund since its organization, and two major projects in this field, involving grants to a dozen different organizations, received approximately $847,000 of the Fund's income during the past year. Appropriations totalling $425,000 were shared by the National Committee for Mental Hygiene, the National Committee on Visiting Teachers, the Joint Committee on Methods of Preventing Delinquency, and the New York School of Social Work, in a continuing program of child guidance and the prevention of delinquency. This Program, initiated by the Commonwealth Fund in 1921, has already resulted in the establishment of psychiatric clinics for the study of "problem children" in seven American cities, while visiting teacher service has been organized in ten representative communities throughout the country.

Additional grants made by the Commonwealth Fund in the field of mental hygiene included $10,500 to the Children's Memorial Clinic in Richmond, $36,000 to the University of Pennsylvania School of Medicine for psychiatric fellowships, $15,000 to the College of Physicians and Surgeons, Columbia University, for the development of its psychiatric clinic, $5,500 to the Berkshire Industrial Farm for the study of case records of delinquent boys, and $6,000 to the Smith College School of Social Work for fellowships in psychiatric social work.

Appropriations totalling $241,000 were made for the Fund's child health program which includes community demonstrations in Fargo, N. D., Athens, Ga., Rutherford County, Tenn., and Marion County, Ore. Another branch of the child health program is being pursued in Austria where 104 child health stations are operated, together with a variety of supplementary work involving last year a grant of $100,000.

The Fund's Division of Education, under the direction of Dr. Max Farrand, has awarded the first twenty fellowships to British graduate students for study in American universities, under the plan announced last spring. The first year's appropriation for these fellowships was $112,000, and in addition the Division spent $85,000 on educational research.

The most recent enterprise of the Fund is a program of assistance to rural communities in establishing hospitals. A gift of $85,000 for a small hospital at Murfreesboro, Tenn., while not strictly a part of this program, marks the first definite effort of the Fund along this line, and studies are being continued for the development of a plan which will provide for the construction of two rural hospitals each year.

Among miscellaneous special grants during the past year were the following: $15,000 to the American Society for the Control of Cancer for its educational campaign, $40,000 to the Foreign Language Information Service for Americanization work, $22,850 to the Hunan-Yale College of Medicine in China, $20,000 to the National Association of Travelers Aid Societies, $15,000 to the National Board of Medical Examiners for the furtherance of standardization and reciprocity in the licensing of medical practitioners throughout the United States, $7,500 to the Presbyterian Hospital for research work, $6,000 to New York University for research in scarlet fever immunization.

THE COST OF MATERNITY CARE

If maternity care is given by a general practitioner either in a patient's home or in a hospital, the minimum cost will be around $150; better care can be procured for $100 more. The service of a specialist raises this minimum to between $400 and $500. Treatment by midwives and the outdoor hospital service cost correspondingly less. In round figures, we may say that for the rank and file of the community, provided no abnormalities of labor occur, it costs from $200 to $300 to be born.—*Bulletin Metropolitan Life Insurance Company.*

DINNER TO DR. DEAN LEWIS

Recently in Baltimore there was given a dinner in honor of Dr. Dean Lewis, Professor of Surgery in Johns Hopkins University and Surgeon-in-Chief to the Johns Hopkins Hospital. Over three hundred physicians were present including representatives of the medical profession in Baltimore, friends of Dr. Lewis from out of town, former members of the resident surgical staff of the Hospital and Alumni of the Medical School.

Dr. John M. T. Finney, who had been Acting Professor of Surgery since the death of Dr. Halsted, was the toastmaster. The announced speakers were President Goodnow, who welcomed Dr. Lewis on behalf of the Faculty; Mr. Daniel Willard, speaking for the Trustees; Dr. Harvey Cushing for the Resident Staff and Dr. Harvey Stone for the Alumni. In Dr. Lewis's response he indicated the triple function of the university department of surgery; teaching as it is ordinarily understood; investigation; and the development of a school of surgery, extending the topical meaning of the term. The statement of Dr. Lewis was received with great enthusiasm.

The toastmaster then called on Dr. Howard A. Kelly and Dr. William H. Welch, the survivors of the "Four Physicians" (Welch, Halsted, Osler, Kelly).

The dinner to Dr. Lewis was part of the two days program for the reunion of all those physicians who had ever been connected with the Medical School or Hospital, now interested in Surgery. There were clinics, demonstrations, visits to the new buildings and an illustrated presentation by Dr. Winford Smith of the building program of the Hospital.

One session was devoted to the consideration of the formation of the Johns Hopkins Surgical Society. So much interest had been manifested by those present as well as by hundreds of others who sent letters of approval that Dr. Lewis was elected Chairman of a Committee to formulate definite plans of organization, for presentation at a meeting to be held next year.

A CORRECTION

In the *Quarterly Bulletin* of The Medical Women's National Association for January, 1926, Page 18, the statement is made that Dr. Eliza M. Mosher of Brooklyn, New York, at the age of 78, who has completed fifty years of continuous practice as a physician, is the oldest practicing physician in the United States.

Although there is no question as to the long and valuable service rendered by Dr. Mosher, Massachusetts has a physician in the person of Dr. C. L. French of Clinton who is over eighty and who is practicing medicine. Dr. French was born in 1845 and graduated from Columbia University College of Physicians and Surgeons in 1869 and has been in continuous practice since graduation. There may be others.

RECENT DEATHS

ROBERTS—Dr. Isaac Lincoln Roberts, a graduate of the Leonard Medical School, Raleigh, N. C., in 1894, and a practitioner in Boston for many years, died at the Massachusetts General Hospital, January 21, 1926, after a brief illness, aged 46. He was a native of Alabama.

He was Most Worshipful Grand Master of Prince Hall Grand Lodge, F. and A. M. He was National Deputy Grand Master of the Grand United Order of Odd Fellows in America, the Isles of the Sea, and Canada. He was also a member of the Pioneer Lodge of Elks and of the Twelfth Baptist Church of Boston.

BREWSTER—Dr. John Densmore Brewster, a practising physician of Windsor, Vt., for the past 45 years, a member of the Vermont State Medical Society, died at his home in that town, January 20, 1926, aged 75. He was a graduate of the University of Vermont College of Medicine and also of the New York University Medical College.

HITCHCOCK—Word has been received of the death in New Haven, Conn., on Christmas Day, 1925, of Dr. Edward Hitchcock, a Fellow of the Massachusetts Medical Society and for 20 years medical visitor for the Massachusetts State Board of Charity. He was born in Stratford, Conn., September 1, 1854, took an A.B. at Amherst in 1878 and an M.D. at Dartmouth Medical School in 1881. Following graduation he was instructor in physical culture at Amherst until 1884, and then held the professorship of physical culture at Cornell until 1903, the professorship of hygiene being added to his other chair after 1890. He took up his duties as medical visitor in the State of Massachusetts in 1904. At one time Dr. Hitchcock was vice-president of the American Academy of Medicine and secretary of the American Association of Advanced Physical Education.

WAKEFIELD—Information has been received of the death in Sheffield, Mass., of Dr. Albert Tolman Wakefield, on November 4, 1925, following a fracture of the hip, complicated by diabetes, at the age of 72.

The son of the Rev. William and Clarina Tolman Wakefield, he was born at Madison, Ohio, July 27, 1853, was educated at Marietta College, Marietta, Ohio, where he received an A.B. in 1872, going on to the Massachusetts Agricultural College at Amherst and graduating there in 1873. He took his M.D. at the Jefferson Medical College, Philadelphia, in 1878, and began practice at Morocco, Ind., moving soon to Peoria, Ill. He settled in Sheffield in 1886 and joined the Massachusetts Medical Society, and had been in active practice since. He is survived by two sons and a sister.

CORRESPONDENCE

AN ANECDOTE OF VELPEAU — MATERNAL IMPRESSIONS

Mr. Editor:

The following amusing anecdote concerning Velpeau was contributed to *La Chronique Medicale* by Dr. Monin (February, 1922).

Translated it reads:

"The great surgeon was passing the rue Montmartre one day, when he saw a woman far advanced in pregnancy, gazing with admiration at a superb calf's head, prepared *secundem artem*, and displayed in front of a butcher's shop. Velpeau stepped up to the woman, and administered a smart blow. Immediately indignant cries from the victim, and expostulations from the crowd, which quickly collected. Velpeau explained his seemingly indefensible action in the following words: 'If I had not suddenly interrupted the train of this woman's thought, in the abrupt manner in which I did, she would have been delivered of a monster. I will take care of her delivery myself without charge, because of my interest in the case, though the fee to my clients is 3000 francs.'"

Very truly yours,
Wm. Pearce Coues.

9 Newbury Street,
January 12, 1926.

BERLIN WELCOMES AMERICAN PHYSICIANS

Editor, Boston Medical and Surgical Journal:

We wish to call your attention to an article appearing in the *Journal of the American Medical Association*, January 16, Department of Foreign News, under the title, "Berlin Faculty Decides Against Official Welcome to American Physicians," copied from a German medical journal dated December 11, 1925.

The reason given by the faculty of the Berlin University for this action was on account of the exclusion of German physicians from taking part in international medical congresses.

There is no doubt that this was the attitude taken by the faculty of Berlin last fall, but many things have transpired to strengthen our international relations since that time. The condition at the present time is entirely different.

The first of this month we received assurance from both the German government and the faculty of Berlin that the members of the Inter-State Post-Graduate Assemblies, who will visit Berlin, June 15, 16 and 17, will receive a most hearty welcome. These greetings were received following several months of discussion between the representatives of the German government, the faculty of the university and representatives of this association, especially with Dr. Carl Beck, secretary of the foreign assemblies of this organization, who is now in Europe completing the final clinic arrangements for the 1926 assemblies.

The position taken by this organization was:

First, that the same spirit of equality and justice enjoyed by the profession of other countries in their relations with one another should be extended to those of the German-speaking countries.

Second, that this association is not affiliated with or responsible for the acts of other medical organizations; therefore, we cannot sign any documents or declarations pertaining to other medical bodies.

Following the publication of the article above mentioned, we cabled Professor Bier, the chairman of the Berlin clinic committee of this association, to give us a statement so that we could speak authoritatively. The following is a copy of Professor Bier's answer:

"Berlin, January 21, 1926.

"*William Peck, Freeport, Illinois:*

"Under the stated circumstances heartiest welcome. Letter follows.

"BIER."

In bringing about this understanding we believe we have advanced largely the spirit of international good fellowship in which this organization is deeply interested.

Very sincerely yours,

WILLIAM B. PECK, *Managing Director,*
Inter-State Post-Graduate Assemblies.

VERMONT STATE MEDICAL SOCIETY

Office of Secretary, Wm. G. Ricker, M.D.
January 21, 1926.

Dr. W. L. Burrage,
Brookline, Mass.

Dear Doctor:

On account of the very limited number of secretaries who find themselves able to attend, the committee consider it unwise to hold the proposed Conference of State Secretaries and Editors in connection with the meeting of the A. M. A. at Dallas in April, and you are hereby notified that by vote of the committee this Conference is abandoned.

Sincerely yours,

Wm. G. Ricker,
J. F. Hassig,
E. A. Hines,
Committee.

WM. G. RICKER,
Chairman of the Committee.

MALDEN MEDICAL ASSOCIATION
INCORPORATED

Editor, Boston Medical and Surgical Journal:

For the information of your readers I wish to say that the above association was granted a charter by the Commonwealth on January 23, 1926.

The officers at present are:

President, Charles E. Donlan, M.D.
Vice-President, Harry J. Weintraub, M.D.
Secretary, Ray H. Shattuck, M.D.
Treasurer, Edward G. DeWolf, M.D.
Directors, Ernest B. Becker, M.D., Thomas W. Leavitt, M.D., Harold O. Royal, M.D., John E. Vassallo, M.D., and Timothy E. Shine, M.D.; all practising physicians of Malden.

The first meeting of the year was held on January 27, 1926, at which officers were elected, and Dr. Frank Lecata, chairman of the Revere Board of Health, gave a short talk on public health problems.

Very truly yours,

RAY H. SHATTUCK, M.D.
83 Main Street, Malden.

THE ETIOLOGY OF THE PAIN IN ANGINA PECTORIS

Roxbury, Mass., January 28, 1926.

To the Editor:

In discussing the etiology of the pain in Angina Pectoris, Dr. Reid* mentions only the cases that have hypertension and where exertion was an important factor. It would be very interesting to know how the pain originates in those cases where there is no evidence of arterio-sclerosis and where the blood pressure has been found low—systolic 110, diastolic 78.

There is also a group of cases known as "Angina Pectoris Decubitus" described by Vaquez where exertion plays no part that cannot be explained by Dr. Reid's theory.

Very truly yours,

H. B. LEVINE.

*Boston Medical and Surgical Journal, Vol. 194, No. 4.

WINTER COURSE FOR RESERVE MEDICAL OFFICERS

January 28, 1926.

Editor, Boston Medical and Surgical Journal:

I am enclosing a copy of the program for the next meeting of the Reserve Medical Officers in their winter course at the Medical Library, 8 Fenway, Boston, Mass. These meetings begin at 8 P. M., and all doctors as well as those who hold commissions in the Medical Reserve are welcome.

HENRY S. BECKFORD, *Major, M. C. (Dol.),*
Headquarters First Corps Area,
Army Base, Boston, Mass.

FEBRUARY 10, 1926

Military Hygiene and Sanitation—Texts: Army Medical Bulletin No. 15—T. R. 112-5, 113-5. Lieutenant-Colonel William J. L. Lyster, M. C., U. S. A.

The Staff Service of Medical Officers—Texts: A. R. 40-10—Army Medical Bulletin No. 14, Chapters III and XXV—Army Medical Bulletin No. 15, Section III, Chapter I. Colonel George F. Keenan, Med.-Res.

Military Administration, Customs of the Service and Courtesies—Texts: A. R. 40-5, 600-10, 600-15, 600-25, 600-30, 600-40, 605-110, 605-115, 605-120, 605-125—Army Medical Bulletin No. 10. Lieutenant-Colonel Peter C. Field, M. C., U. S. A.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED FOR THE WEEK ENDING JANUARY 23, 1926

Anterior poliomyelitis	2	nal meningitis	3
Chickenpox	274	German measles	60
Diphtheria	108	Gonorrhea	89
Dog-bite requiring anti-rabic treatment	1	Hookworm	1
		Influenza	11
Encephalitis lethargica	4	Measles	1,601
		Mumps	67
Epidemic cerebrospi-		Ophthalmia neonatorum	12

Pneumonia, lobar	168	Tuberculosis, pulmonary	116
Scarlet fever	311	Tuberculosis, other forms	14
Septic sore throat	5	Tuberculosis, hilum	17
Syphilis	41	Whooping cough	397
Suppurative conjunctivitis	18	Typhoid fever	8
Trachoma	3		

CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING JANUARY 23, 1926

Diphtheria	39	Conjunctivitis inf.	25
Last week	41	Encephalitis epid.	2
Diphtheria bacilli carriers	21	German measles	12
Whooping cough	92	Influenza	9
Last week	80	Mumps	4
Scarlet fever	65	Pneumonia, lobar	57
Last week	74	Septic sore throat	1
Typhoid fever	3	Tuberculosis, pulmonary	21
Last week	3	Tuberculosis, other forms	3
Measles	775	Gonorrhea	19
Last week	475	Syphilis	27
Bronchopneumonia	45		
Chickenpox	148		

NEWS ITEMS

DALLAS, TEXAS—Arrangements have been made by a committee on transportation of the American Medical Association for certain tours to the place of meeting of the Association next April, Dallas, Texas. These are described in a booklet issued by the Lifsey Tours, Inc., 527 Fifth Avenue, New York City, and may be obtained by communicating with Mr. J. S. McAndrew, Tour Director, at that address. There are plans for a direct trip and return, for a 16-day trip by way of the Panama Canal and side trips to Mexico City or to the Pacific Coast.

FINED FOR INFRACTION OF THE NARCOTIC LAW—The daily papers report that Dr. Walter C. Harris of Worcester, Mass., pleaded guilty to the indictment charging him with selling morphine illegally.

It is reported that Harris made no examination of the purchaser and made six sales amounting to one hundred and ninety-four quarter grain tablets. Although the prosecuting attorney asked for a jail sentence, Judge Brewster did not adopt the recommendations but imposed a fine of five hundred dollars.

APPOINTMENT OF DR. T. L. STORY—Dr. Theodore L. Story, formerly of Holden, has been appointed to the position of physician to the American Optical Company, Southbridge, Mass.

ADDRESS AT HARVARD MEDICAL SCHOOL—On Thursday afternoon, January 28, at Harvard Medical School, Dr. Alexander Hamilton Rice, honorary lecturer in the Department of Tropical Medicine, spoke on his most recent expedition to South America. This was the seventh of a series of expeditions commenced in 1901 and covered an area of over 500,000 square miles in northern Brazil. These expeditions are for the purpose of making geographical, geological, ethnological, anthropological and medical surveys of this unexplored part of the world. Dr. Rice illustrated his lecture with moving picture films and aerial lantern slides taken on the expedition.

SUSPENSIONS OF REGISTRATIONS AS PHYSICIANS—At the meeting of the Board of Registration in Medicine held on January 21, the following action was taken on various doctors:

Dr. Alfred W. Gwinnell, 1227 Commonwealth Avenue, Boston—Registration suspended for three months from January 21, 1926, for violation of Federal Prohibition Act.

Dr. Ambrose C. Saunders, 1 Hancock Street, Somerville—Previous suspension reconsidered. Voted to suspend registration three months from December 10, 1925, instead of one year from December 10, 1925.

Dr. William N. Noyes, 10 Brown Street, Salem—Registration suspended for three months from January 21, 1926, for violation of Federal Prohibition Act.

SCHOLARSHIPS AWARDED AT HARVARD MEDICAL SCHOOL—At a meeting of the President and Fellows of Harvard College in Boston, January 25, 1926, it was voted to award scholarships for 1925-26 to the following named persons:

Perry Cossart Baird, Jr., Marshall Coulter Balfour, Walter Orville Blanchard, Virgil Glenn Casten, Edwin Marshall Deery, Ira Milburn Dixson, Edwin Russell Durno, Henry Fuller, Euclid Peter Ghee, Robert Alvan Goodell, LeRoy Goodman, Cornell Gilbert Gray, Samuel Sunny Hanflig, Donald Clare Hoffman, Howard Beeman Hunt, David Jacobs, John Whitfield Larrabee, Gustaf Elmer Lindskog, John William McKoan, Jr., Carl Henry McMillan, Alexander Marble, Valy Menkin, Anthony Vito Migliaccio, Frederic Arthur Patterson, Chauncy Valentine Perry, Thomas Alexander Cumming Rennie, Monroe Jacob Schlesinger, John Berell Sears, Tom Douglas Spies, John Dunham Stewart, Albert Joseph Sullivan, Daniel Vincent Troppoli

EARLY HOSPITALS—Dr. J. Emmons Briggs delivered an address upon "Early Hospitals" before the Weekly Assembly held January 6, 1926, in Evans Memorial Auditorium at Boston University School of Medicine.

DR. FREDERICK HOWARD FALLS, professor of obstetrics and gynecology at the University of Iowa, has accepted an appointment to head similar work at the University of Illinois in the medical school in Chicago.

el Study Club of American Physicians, founded at the London International Medical Congress of 1913, is announcing plans for its 1926 Study Tour. Sailing from New York on June 12, the party will visit clinics and medical institutions in the medical centers of Oslo (Christiania), Stockholm, Copenhagen (optional to Berlin and Munich), Cologne, Heidelberg, Strasbourg, Berne, Zurich, Leysin, Geneva, Paris and London, returning on August 8. Dr. Louis L. Seaman of New York is president, Drs. Fred H. Albee of New York, Edward B. Heckel of Pittsburgh, John P. Lord of Omaha, vice-presidents. Physicians in good standing, to the limit of 50, are invited to participate in this tour, and the secretary, Dr. Richard Kovacs, 223 East Sixty-eighth Street, New York City, will supply any further information desired.

REPORTS AND NOTICES OF MEETINGS

CONNECTICUT PUBLIC HEALTH ASSOCIATION

ON Thursday, February 11, the Connecticut Public Health Association is to meet at Bridgeport at the Welfare Building, Washington and Madison Avenues. All health officers should

attend this meeting to hear the excellent program.

The morning session begins at 10:30 A. M. with a Clinic on Scarlet Fever Diagnosis. This is to be conducted by Dr. William H. Coon, Health Officer of Bridgeport. Following this will be an address on Scarlet Fever by Dr. Francis G. Blake, School of Medicine, Yale University.

The afternoon session, beginning at 2:30 P. M., will be devoted to an address on "The Preventable Diseases of Adult Life," by Dr. Haven Emerson, College of Physicians and Surgeons, Columbia University.

A MEMORIAL MEETING IN HONOR OF DR. JOHN TAYLOR BOTTOMLEY

THIS meeting will be held under the auspices of St. Luke's Guild of Boston in the Boston Medical Library, Fenway, Boston, Monday evening, February the fifteenth, nineteen hundred and twenty-six at eight-fifteen o'clock.

The address will be delivered by Dr. Raymond P. Sullivan of New York City, formerly of Mayo Clinic.

Members of the Profession are cordially invited to attend.

MASSACHUSETTS GENERAL HOSPITAL

THE regular monthly clinical meeting of the Mass. General Hospital will be held Thursday, February 11, at 8:15 P. M.

PROGRAM

1. Presentation of cases.
2. Radiological Examination of the Deep Cavities of the Body with Iodized Oil (Lipiodol). (In English). By Dr. Jacques Forestier, Aix-Les-Baines, France.

NEW ENGLAND DERMATOLOGICAL SOCIETY

THE regular quarterly meeting of the New England Dermatological Society will be held on Wednesday, February 10, at three o'clock, in the Skin Out-Patient Department of the Massachusetts General Hospital.

WESLEY T. LEE, *Secretary.*

NEW ENGLAND PEDIATRIC SOCIETY

THE ninety-fifth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 12, 1926, at 8:15 P. M.

The following papers will be read:

1. An Unusual Picture of Primary Blood Disease in an Infant, Philip H. Sylvester, M.D., Boston.
2. The Age of Choice for Operations of Choice in Infancy and Childhood, Thomas H. Lanman, M.D., Boston.

Light refreshments will be served after the meeting.

JOHN LOVETT MORSE, M.D., *President.*
JOSEPH GARLAND, M.D., *Secretary.*

THE TRUDEAU SOCIETY

THE Eighth Annual Meeting of The Trudeau Society of Boston, will be held in John Ware Hall, Boston Medical Library, 8 The Fenway, Boston, Mass., on February 9, 1926, at 8.15 P. M.

Dr. Horace LoGrasso, of The J. N. Adam Memorial Hospital, Perrysburg, N. Y., will speak on *Heliotherapy.* Dr. LoGrasso is considered the leading authority on the present status of heliotherapy.

Doctors Richard M. Smith, Z. B. Adams, Richard Miller, John B. Hawes, 2nd, and others, will take part in the discussion.

Physicians, students and nurses are cordially invited to attend this meeting.

GEORGE S. HILL, M.D., *Secretary.*

HARVARD MEDICAL SOCIETY

THE next regular meeting of the Harvard Medical Society will be held as usual in the amphitheatre of the Peter Brent Brigham Hospital, Feb. 9, 1926, at 8:15 p. m. The program follows:

1. Demonstration of cases.
2. Some New Observations on the Anatomy and Physiology of the Gall Bladder—Dr. E. A. Boyden, Dept. of Anatomy, Harvard Medical School. Dr. L. R. Whitaker, Peter Brent Brigham Hospital.

All members of the Medical Profession, Medical Students and Nurses are invited.

S. A. LEVINE, M.D., *Secretary.*

MEETINGS OF THE BOSTON HEALTH LEAGUE

THE annual dinner meeting of the Boston Health League will be held at the Hotel Victoria, 271 Dartmouth St., on Wednesday, February 17th, 1926, at 7 P. M.

Dr. C. E. A. Winslow, Professor of Public Health, Yale University, and President of the American Public Health Association, will deliver an address on "The Health Department and the Individual."

Members are cordially invited to bring guests.

Apply to Dr. Charles F. Wilinsky for reservations with check for $2.00.

FRANCIS X. MAHONEY, M.D.,
President, Boston Health League.

A MEETING of the Boston Health League was held at the North End Health Unit, 41 North

Margin Street, on Wednesday afternoon, January 13, 1926.

Dr. John Bartol, honorary president of the League, introduced the speaker of the afternoon, Dr. George H. Bigelow, Commissioner of Public Health for the Commonwealth of Massachusetts, who spoke on the Relation of the State Department of Health to Local Health Departments.

Dr. Bigelow noted the fact that police powers in matters of health were vested in the local rather than the State Department and sketched the background for this state of affairs. He mentioned as one of the early influences in forming the original State Board of Health the General Health Board of Great Britain, which had broad police powers that proved quite unenforcible, and also the precedent here among the early colonies of leaving matters pertaining to health and morals to the local communities. He read an excerpt from the law of 1869 creating the Massachusetts Health Department, which was the first to be formed in this country. This made no reference to police power, but mentioned investigation, advice, etc.

In general, this policy has been continued. Except in connection with food and drugs, sanitary requirements, reporting of certain diseases, etc., there are few instances of definite police authority in the State Health Department.

The Massachusetts Department of Public Health has now seven divisions: Communicable Disease; Tuberculosis; Hygiene; Sanitary Engineering; Water and Sewage Laboratories; Food and Drugs; and Biological Laboratories.

Dr. Bigelow stressed the investigative function of the State Health Department, showing that it was a logical one because of the larger field of activity of the State Department and because so many problems are not limited by city and town boundaries.

As examples of investigative work he cited: the original work on water supply and sewage disposal; the work in connection with the control and recognition of childhood tuberculosis; the recent, and as yet incomplete, investigation of the thyroid problem in Massachusetts; the question of offering diagnostic service for whooping cough; and the investigation of shellfish conditions in the State.

The Department also performs certain common service activities such as the production and distribution of biological products, diagnostic laboratory service, and supervision of water supplies, which can be performed more economically by the State than by individual towns and cities, excepting possibly the largest cities.

A third function is that included under the word advice. The Department will obtain results, or not, depending upon the degree to which it can influence communities to maintain services, the value of which has been demonstrated by the State or by voluntary agencies. Instances of this are notable in diphtheria immunization, which must be continued by the communities, and well-child conferences, for which they must finally take full responsibility. Likewise, the ten year childhood tuberculosis program of the State, depends for its real value on both the preliminary and the follow-up work of local communities.

As to the merits of decentralized and centralized health authority: It is necessary to have trained personnel, adequate funds and an informed public opinion in order to have centralized authority. For Massachusetts, with its well developed local pride and self-consciousness, decentralized health authority seems wisest.

In concluding, Dr. Bigelow summed up the three functions of the State Department of Public Health as: coöperation; investigation; and certain common service activities.

MEETING OF HARVARD MEDICAL SOCIETY

THE Harvard Medical Society held its regular meeting at the Peter Brent Brigham Hospital on Tuesday evening, January 26th. Two cases were presented. The first was a case of marked secondary anemia with enlargement of the liver and spleen in a girl of sixteen years of age. Eight weeks before entry she began to lose weight, had severe epistaxis and complained of weakness. Other symptoms were nausea and vomiting and a slight elevation of temperature. An operation was done at that time for the relief of peri-nephritic abscess, but none was found. Following the operation she had the same symptoms as before with increasing weakness and pallor. Upon entry to the Brigham Hospital ten days ago, physical examination revealed a greatly enlarged liver occupying the whole of the right side of the abdomen and the edge of the spleen was palpable. There was shifting dullness in the abdomen but no fluid wave. Her red cell count was 1,600,000 and the hemoglobin forty per cent. The differential white all count showed a high percentage of lymphocytes with a leucopenia. Numerous dilated venules found in the nasal septum, were considered the source of bleeding. Dr. Christian thought the anemia in this case was entirely secondary to the loss of blood. In similar cases without gross bleeding, there was no anemia. The striking thing about these cases is the mild febrile reaction and the absence of any evidence as to the etiological factor. The liver in these cases shows a marked deteriorative process not unlike acute yellow atrophy. It is a comparatively unusual clinical picture and practically all the cases studied have been in children or young people.

Dr. McLean of the surgical service presented a case of Charcot's arthropathy. This case was

a man of 42 years of age who entered the hospital because of trauma to his left knee from a fall. There was great swelling and edema of the joint with considerable ecchymosis. The X-ray of the injured knee showed marked soft part swelling and the joint surfaces badly chewed up. The right knee, although not involved in the trauma, showed even more joint destruction with complete lack of alignment and abnormal mobility. There was very little in the history to confirm the diagnosis of a luetic involvement. In 1917 he had violent pain in both knees with an attack of influenza. Six years ago, the Wassermann of both blood and spinal fluid were negative. The Wassermann tests are also negative at the present time, on the blood, the spinal fluid, and on fluid aspirated from the swollen knee joint. Physical examination showed good vision with normal papillary reflexes and no inequality of the pupils. The tendon reflexes were sluggish however. There was also a deficiency in pain sensation over both legs. There was absence of the vibration sense over the lower bony prominences and faulty temperature sense in the legs and thighs. The Gold Sol reaction showed a very slight tabetic curve. After a few days treatment with Potassium Iodide, he developed inequality of the pupils and some incontinence. Despite the extreme mobility of his knee joints the patient is well able to walk about. He wears semi-elastic cotton swathes for support about the affected joints.

Dr. Samuel Lambert of New York was the speaker of the evening. He presented a method which he has devised of using slow motion pictures to reproduce the cardiac arhythmias as observed experimentally in the heart of the dog and the turtle. The pictures of the beating ing heart were taken at the rate of 160 exposures per second and are screened at the rate of eighteen per second. Thus the heart is seen in very slow motion so that changes in the beating heart can be more readily followed by the eye. Dr. Lambert hoped to be able to demonstrate by this method irregularity of conduction in the heart muscle with a view to illustrating the nature of extra systoles but the definition of the camera is not fine enough for this. He was able to produce heart block with drugs such as pilocarpine and other irregularities of the heart by electric stimulation. The films show very well these irregularities, including auricular and ventricular fibrillation. The method also makes a contribution to the study of the normal heart action in that it shows the rotation and change of position in the ventricle from one phase to another. In the partial heart block induced with pilocarpine, the auricles and ventricles could be observed in a 2:1 or a 3:1 rhythm. Ventricular fibrillation induced by stimulation of the ventricles was very well shown in the film. Dr. Lambert believes that ventricular fibrillation is a fairly frequent cause of death from the overdosage of such drugs as digitalis and strophanthin in susceptible cases.

The film of the turtle's heart showed heart block induced by bathing the heart in a solution of cocaine and recovery effected by the injection of atropin.

Although it is very difficult and tedious to obtain satisfactory films of these experimental heart arhythmias, Dr. Lambert plans to make further studies by this method which he hopes will make some contribution to our knowledge of the physiology and pathology of the heart.

SOCIETY MEETINGS

District Medical Societies

Essex South District Medical Society

Wednesday, February 3—At 7 P. M. Hawthorne Hotel, Salem. Dr. Walter Timme, New York. Subject to be announced.

Wednesday, March 3—Lynn Hospital. Clinic, 5 P. M. Dinner, 7 P. M. Dr. Charles E. Mongan, Somerville, "Some Problems of Present-Day Practice."

Thursday, May 6—Censors meet at Salem Hospital, 3:30 P. M.

Tuesday, May 11—The Tavern, Gloucester. Annual meeting. Speaker to be announced.

Essex North District Medical Society

May 5, 1926—The annual meeting at the Anna Jaques Hospital, Newburyport.

Middlesex East District Society

February 10—At the Harvard Club. Address by Dr. William F. Boos; subject, "Industrial Poisoning."

April 14—At the Harvard Club at 6:30 P. M. Address by Dr. William E. Ladd; subject, "Kidney Affections in Childhood."

May—Annual meeting, Colonial Inn, North Reading. Subject and speaker to be announced.

Suffolk District Medical Society

February 24—At 8:15 P. M. Surgical Section. "Post-operative Care of Surgical Cases." Dr. Dean Lewis, Chicago. "Surgical Convalescence," by Dr. John Bryant.

March 31—At 8:15 P. M. Medical Section. "Some Experiments in Group Physical Examination." Dr. Roger I. Lee.

April 28—At 8:15 P. M. Annual meeting. Election of officers. "Some Diagnostic, Prognostic and Therapeutic Aspects of Disorders of the Blood." Drs. George R. Minot, Cyrus C. Sturgis and Raphael Isaacs

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEWS

Index of Treatment. By various writers. Edited by ROBERT HUTCHINSON, M.D., F.R.C.P., and JAMES SHERREN, C.B.E., F.R.C.S. Ninth edition, revised and enlarged. Published by William Wood and Company, New York.

This book is without doubt of distinct worth. Almost every condition known to internist, surgeon or specialist is dealt with, and by men many of whom are authorities in their own fields. The advice given is for the most part practical and wise; it is not text book medicine re-edited, but manifestly draws on the experience of mature practitioners of medicine.

In a field as chaotic as that of medical treatment, individual judgments differ. The reviewer feels that far too much space is given to the exhibition of drugs and to the use of electricity in therapeutics. He is, moreover, dis-

appointed to find various treatments for pernicious anaemia optimistically described at length, while the medical treatment of duodenal ulcer is covered in a few lines. The management of diabetic coma is inadequate. The initial doses of antitoxin advised in cases of diphtheria are, in the reviewer's opinion, too small, and the comparative inefficacy of subsequent doses apparently unrecognized. The necessity of testing for sensitization before intravenous injection of antitoxin is not mentioned.

It is, moreover, disturbing to find bleeding, leeching, wet and dry cupping, citric acid and strychnine still presented as valued aids in the treatment of pneumonia while serum treatment is not even discussed. In the treatment of scarlet fever a polyvalent streptococcus serum is suggested, but the specific serum of Dochez is neglected. The use of artificial respiration in cases of drowning is recommended for a half hour only; the treatment of carbon monoxide poisoning is not given; that of mosquito bites receives half a page; and why were we of the Harvard Medical School never taught the uses of the Seton?

Such criticisms, however, only slightly detract from the real value of the book. It is usable and for the most part complete and authoritative. To the general practitioner in particular it will prove of undoubted service.

Reproduction in the Rabbit (IV in a series of Biological Monographs). By JOHN HAMMOND, M.A. (School of Agriculture, Cambridge, England). Published by Oliver and Boyd. Edinburgh and London 1925. 210 pages.

"Reproduction in the Rabbit" belongs to those more specialized classes of publications which have perhaps at first thought little appeal to the doctor, but which nevertheless contain within them much of interest and much that will eventually prove to be of real practical value. It is a happy augury of the times that more and more of these scientific monographs are being published in such permanent form that they are more readily available for future reference. This monograph reports the results of a very exhaustive investigation into different phases of reproduction in the rabbit. It is really a collection of papers each dealing with a particular subdivision of the larger subject. In each the literature is summarized, original experiments are given and there is a complete bibliography. Most of the book, except for a short chapter on reproduction in the male, deals with phases in the female. There are chapters on "Ovulation and the Graafian Follicle," "The Preliminaries to Fertilization," "Sterility," "The Effects of Lactation" and "The Duration of Pregnancy." There is also one on the Corpus Luteum by F. H. A. Marshall. As a storehouse of important information the book ranks with similar publications on other mammals—notably those on the Rat (Donaldson, The Rat. Evans and Long, The Oestrous Cycle in the Rat, and Evans and Bishop, Studies in Reproduction, etc.)

It represents the sort of intensive study of one species that is essential if our knowledge of Reproduction in general is to be increased. There is of course the caution to be kept in mind that no facts as found in one species necesarily apply to any other. This is particularly true of the rabbit which not only has no oestrous cycle, but only ovulates after coitus. This would seem to make study of ovulation and its allied functions particularly hard, but by the ingenious use of vasectomized males Hammond was able to overcome this difficulty.

Throughout the book Hammond adduces evidence to show the presence in the body of a substance necessary for growth, gonad formation and for lactation. This substance he calls after Heape the "Generative Ferment." He naturally is unable to describe this hypothetical substance but makes the suggestion that it may be derived from certain specialized substances in the food, such as the vitamines. Whether or not such a substance exists, the conception certainly has its utility. For instance, it is not until growth is complete and the demands of the body for this "ferment" have been satisfied that a surplus becomes available from which the reproductive organs may elaborate their particular hormones and puberty is ushered in. Such a conception explains the reason for the onset of puberty and harmonizes all the known facts. Again, prolonged lactation so uses up the supply of the substance (apparently because it is needed in the milk for the proper growth of the young) that there is none for further reproduction while it is going on, and either a temporary functional sterility ensues, or pregnancies are resorbed. It is only when the litter being fed is a very small one that reproduction can still go on as before. Enough has been said to indicate the value of the book and the enormous amount of original work which it represents. Though one might have wished that the numbers employed in some of the experiments had been larger, and though one may not always entirely agree with the hypotheses of the author, still one cannot help feeling the greatest admiration for the conception and execution of a most valuable piece of research.

Textbook of Orthopedic Surgery for Students of Medicine. By JAMES WARREN SEVER, M.D. The Macmillan Co., New York City.

A brief didactic presentation of standard orthopaedic interpretation, and of treatment accredited by wide general use, concerning the usual conditions met in the specialty is of value to the student of medicine and to the busy

practitioner. This Dr. Sever has supplied, and his book will be found equally valuable to both classes of readers.

The author has avoided the more complex considerations of a rapidly developing specialty, which might only confuse rather than instruct. Description of operative treatment is confined to the high points so as not to encumber the reader with operative details, and only those operations are mentioned which pass without discussion as indicated in a given type of case. Many are omitted as for the student of advanced training.

A careful detailed account of actual bedside care is emphasized, and recognized orthopaedic appliances are described.

Dr. Sever has ably accomplished his purpose.

A Text-Book of Psychology for Nurses. By MAUDE B. MUSE, R.N., A.M. Institute in Nursing Education at Teachers College, Columbia University. 351 pp., illustrated. W. B. Saunders Company, Philadelphia ann Lonoon, 1925. Cloth, $2.50.

This comprehensive book is, we presume, written as a textbook for nurses in training in a general hospital. The field of psychology is well covered in the fourteen chapters. As a matter of fact, the book might be justly criticised as covering the field too well. It is a better textbook for teachers of psychology than for the nurses themselves. If used, however, much could be omitted by a skillful teacher—material that is beyond the scope of the nurse whose schedule is already overcrowded with "courses" and "lectures."

The abstract attitude of the author, moreover, badly outweighs the concrete aspect of mental disease as seen by the psychiatrist. It would seem to the reviewer that in a graduate school (and a nurses' training school must be considered as such) this book would be much less useful to students than a volume written from the point of view of the neuropsychiatrist, who must see the multiple cases of psychoneurosis or early psychosis in a general hospital ward. He needs the nurse's help in both diagnosis and treatment. A nurse trained as a good observer, endowed with a fair degree of common sense, and instructed in a few of the principles of mental disorder would be of more value to both the doctor and the patient than one who knew the book under review by heart. We would expect this volume to be extensively used in a teachers' college, but not in a hospital training school.

Acute Infectious Diseases. A Handbook for Practitioners and Students. By J. D. ROLLESTON, M.A., M.D. (Oxon.). Senior Assistant Medical Officer, Grove Fever Hospital, London. Editor, *British Journal of Children's Diseases;* President Section of History of Medicine, Royal Society of Medicine. New York: Physicians and Surgeons Book Company. 1925.

This volume of 376 pages deserves high praise as a sound, clear and complete (though still concise) description of the diseases which form its subject. Its purpose, as defined in the preface in qualification of the title, is to treat, chiefly from their clinical aspects, of the commoner diseases which are customarily isolated in hospitals. Thus for a list of sixteen diseases ranging from diphtheria through cerebrospinal fever and typhoid fever to small pox and vaccination careful and systematic discussions are given. The author's experience manifests itself in the minute attention which is given to many practical details. But the text is by no means an expression of personal opinions. The literature is referred to constantly and well-selected bibliographies are appended for each disease. The historical notes which appear early in each division add distinctly to the interest with which the book may be read. The reviewer's only regret is that the author has adhered strictly to his declared intention and has not dealt also with other acute infectious diseases such as pneumonia, influenza and malaria in the same admirable way.

Abdominal and Pelvic Surgery for Practitioners. By RUTHERFORD MORISON, M.B., F. R. C. S., LL.D. London: Oxford University Press, 1925.

IN this book of 212 pages Mr. Morison reviews the aspects of surgery that are most important in the practice of the doctor who does not operate. The principal object of the book is to teach accurate, early diagnosis together with the indications for operation. After discussing general diagnostic methods, the abdominal emergencies are considered in detail in a hope of improving results by increasing the proportion of early operations. The other sections cover subacute and chronic abdominal diseases and more briefly operations in abdominal and pelvic disease, and after treatment of operative cases. One of the most valuable features of the book is the use of about one hundred brief case histories to illustrate each condition which he wishes to emphasize. In brief this is a very readable little book whose teachings should greatly improve surgical results and one which should prove of value to all general practitioners.

Surgical Clinics of North America. October, 1925. St. Louis. Volume 5. Number 5. W. B. Saunders Company.

This volume conforms in style and general arrangement and in treatment of subjects with those which have preceded it. It does not

seem to the reviewer that the cases reported contribute quite as much of value as when groups of cases which are under present day discussion are reviewed in larger series. The discussions of each individual case here presented are, however, excellent and of definite benefit. The contents of this volume are as follows:

Clinic of Dr. Willard Bartlett: Six patients in whom a thyroidectomy and a second major operation are indicated.

Clinic of Dr. H. S. Crossen: Types of bleeding myoma.

Clinic of Dr. Ernest Sachs: Various types of pathologic lesions of the central nervous system that are readily amenable to surgical measures.

Clinic of Dr. A. O. Fisher: Surgical treatment of Ileocecal Tuberculosis.

Clinic of Dr. John R. Caulk: Horseshoe kidney.

Clinic of Dr. LeRoy C. Abbott: The treatment of congenital club foot.

Clinic of Dr. Ellis Fischel: Giant-cell tumor of the jaw.

Clinic of Dr. Francis Reder: Lipoma of the right pectoral region, Tumor of the abdominal wall, Inflammation of the prepatella bursa, Fibro-angioma of the scalp, Angioma of the left temporal and malar regions, and Congenital defect of the left ala of the nose.

Clinic of Dr. Roland Hill: Fracture of the larynx.

Clinic of Dr. Edw. P. Lehman: A case of acute pancreatitis: drainage of pancreas; cholecystostomy, cholecystectomy.

Clinic of Dr. Edgar F. Schmitz: Bladder fistulae in gynaecology and obstetrics.

Clinic of Dr. M. G. Seelig: Surgical treatment of angina pectoris. Disease of the appendix, Rhinophyma.

Clinic of Dr. Evarst A. Graham: Cholecystography.

Clinic of Drs. V. P. Blair and J. B. Brown: Personal observations on the course and treatment of simple osteomyelitis of the jaws.

Clinic of Dr. Fred Taussig: Questionable uterine carcinoma in very young persons.

Clinic of Dr. Malvern B. Clopton: Osteomyelitis.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume LIV.

It is almost hopeless in the short space accorded to a book review to adequately present the work contained in such a collection as this. In glancing over the titles of the reprints, they are found to range from "Hydrogen ion concentrations in the blood of insects" and "The stereo-chemistry of 2, 5—anhydrotetroxyadipic acids" to "The mechanism of the formation of sarcoma."

Among the most interesting papers are those of Rous dealing with the acidity or alkalinity of living mammalian tisues and those of Carrel on the mechanism of the formation of sarcoma. By the indicator method which Rous has developed much can be learned about body processes. The apparent degree of acidity in some of the living cells is startling.

Massage and Therapeutic Exercise. By MARY MCMILLAN. Second Edition, Reset. Philadelphia and London: W. B. Saunders Company.

The author of this book has had a wide experience and a right to speak with authority. In it she concisely describes massage and its uses in many pathological conditions, grouping and tabulating corrective exercises. The subject matter is well presented, and although it contains little new material, its scope is broad enough to make it an excellent textbook. The therapeutic exercises are well chosen and clearly outlined, including exercises for special conditions, such as cardiovascular disturbances, etc. The chapters on "Posture Training," "Feet," and "Spinal Curvatures" are comprehensive and interesting. This second edition would seem to be entirely warranted.

Skull Fractures Roentgenologically Considered. By WILLIAM H. STEWART, M.D., roentgenologist to the Lenox Hill and Harlem Hospitals, New York City. With surgical comments by William H. Luckett, M.D., directing surgeon, Lutheran Hospital, and consulting surgeon Harlem Hospital, New York City. Being Volume six of the Annals of Roentgenology. Cloth $12.00. Eighty-three roentgen ray studies on forty-four full page plates and forty-nine text illustrations. New York, Paul B. Hoeber, Inc. 1925.

Dr. Stewart's new volume is a valuable contribution to the science of roentgenology. He has shown that by attention to detail and with certain refinements in technique it is possible to obtain roentgenograms upon which the surgeon may rely both as to negative as well as positive findings. He has also described very thoroughly the various points in the differentiation between a fracture line and some of the normal skull markings and also the length of time the fracture is visible by roentgen ray after injury.

In the introductory chapter entitled "Surgical Comments," Dr. Luckett discusses the increase in injuries of the skull due to automobiles, structural steel buildings and other factors and also the increase in the percentage frequency of diagnosis due to more careful attention to technical detail. He points out that the X-ray frequently demonstrates a fracture of the skull in many cases where there is no

swelling or symptoms of any character. In such cases it is especially important to recognize a fracture if present, because of the possibility of remote sequelae.

Chapter I "General Considerations," discusses some of the clinical conditions of importance in relation to fractures. Fractures of the skull are mistaken for other conditions, some of which are discussed and the cases cited.

Chapter II "Roentgenographic Technique," contains very valuable technical suggestions, particularly the combination of the stereoscopic method with the use of the Potter bucky diaphragm.

Chapter III is a brief chapter on "Roentgenographic examination of the skull" with the portable apparatus." The author states however that unless the urgency of the case necessitates immediate attention, it is much more satisfactory to delay the examination until the patient can be brought to the X-ray room, where more adequate equipment is available.

Chapter IV "Interpretation of Roentgenograms" describes the normal shadows seen by the roentgenogram of the skull and differentiates between these and fracture lines.

Chapter V "The time factor in the disappearance of roentgenographic evidence in fracture skulls," is of importance from the medical and legal standpoint. Several case histories with illustrative roentgenograms are cited.

Chapter VI is a very brief chapter entitled "Comments," which states among other things worthy of consideration the fact that some surgeons trephine every case of fracture of the skull whether they have symptoms of cerebral compression or not, justifying their procedure by feeling that this was the only positive means of ascertaining the actual conditions. "Few of these men have been situated so that they could receive the full benefit of proper roentgen ray examination. It seems incredible that any up-to-date hospital should fail of being equipped in such a manner that the skull can be examined using all the latest technique, of which the stereoscopic method is by far the most important."

Then follows the forty-four full page plates which are unusually clear as to the fracture lines, which are indicated by arrows and the cases are described in detail on the adjacent page. In the reviewer's opinion the volume is a distinct contribution to diagnosis and treatment of head injuries. The subject is an important one at this time and this volume should be read with care both by the roentgenologist and the surgeon.

Bacteria in Relation to Man. By JEAN BROADHURST, Ph.D. J. B. Lippincott Company, Philadelphia, 1924.

Miss Broadhurst is Professor of Biology at the Teachers College at Columbia and her teaching deals to a considerable extent with the preparation of nurses for the practical phases of their profession. The point of view from which the book is written is an excellent one in that it postulates that the study of bacteriology can be one of the most interesting and simple introductions to general biology. The book is written distinctly for beginners, and though elementary in treatment is sufficiently full to arouse a desire for more information in intelligent students. The laboratory directions, carefully correlated with the text, make it suitable for the use of classes in biology, and would form an excellent skeleton for courses of this kind. If Miss Broadhurst has stimulated the use of bacteriology as a part of the curricula of departments of biology in colleges and normal schools, she has done an important educational service.

The information given, though elementary, is carefully selected and accurate. For the use of pupil nurses, for whom we suspect the book was largely written, it is unusually valuable. It gives the general basic principles which the average nurse should have for an intelligent understanding of what is going on about her, without pretending to give thorough medical information, which does more harm than good in dressing up a smattering in the terminology of real knowledge, and creating an omniscience which is rare in the best nurses but sufficiently familiar to experienced physicians as an occasional by-product of the higher education of this profession. Miss Broadhurst in this respect has written a book exactly adapted to her purposes. So many of us, moreover, are interested in bacteria only—or chiefly—when they invade the body for sinister purposes, that it is well to put into the hands of the laity an occasional treatise of this kind in which there is some indication of the indispensable services which the beneficent close relations of the vicious ones bestow upon plant and animal life, far outweighing the total harm done by the black sheep of their kind.

The book could not have been written unless by an experienced teacher and broadly trained biologist, and we sincerely hope that it will be widely used.

A Medical Formulary. E. QUIN THORNTON, M.D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Twelfth Edition, Revised. Lea and Febiger. Philadelphia and New York. 1925.

This small volume in its latest revision retains its original form, but is greatly improved over previous editions by certain additions. It is, as its name implies, essentially a collection of formulae or prescriptions. Diseases and symptoms, medical, surgical, dermatologic or belonging to other specialties, are given alphabetically as headings, and under each are given a number of prescriptions. Following each prescription is

a line, more or less, giving the indications for that prescription. But whereas older editions give prescriptions only, in this edition have been included briefly the treatment other than by prescriptions of diabetes, syphilis, scarlet fever, diphtheria, digestive disorders, typhoid fever, diseases of the heart and blood vessels and a number of diseases in which biological products have proven of special value. These insertions have done much to lessen the danger that the unthinking reader will exaggerate the importance of medication to the neglect of other treatment. For the purpose stated by the author in the preface, of furnishing suggestions to the doctor of useful additions to his treatment, this book can be recommended. The reviewer is glad to see in it certain insufficiently known preparations which are of value. Other prescriptions with which he has not had personal experience appeal to him as varying greatly in what would be expected of them, but undoubtedly all are applicable in their place, and the practicing physician may well obtain by tentative trial of formulae selected from these pages measures which will prove of great value to him.

A Textbook of General Bacteriology. By EDWIN O. JORDAN, Ph.D. Eighth Edition, Thoroughly Revised. W. B. Saunders Company, Philalphia. 1924.

When a book has reached its eighth edition there is little need to speak of its usefulness. Dr. Jordan's Textbook has been on the shelves of medical libraries for a good many years and has remained there as an indispensable guide for teachers and students. It is growing more and more difficult to deal adequately with bacteriology in a single volume and it has become necessary for writers on this subject to choose their materials carefully for the particular purposes which they have in mind. This book has long held an intermediate position between the purely botanical and biological treatises and the more specialized medical texts in which correlation of the laboratory with the diagnostic and therapeutic problems of the clinic is attempted. The task which Dr. Jordan has set himself from the beginning, namely, to write a general textbook which shall finely strike the balance between these two extremes, has been maintained in this edition, in spite of the considerable addition of information which the lapse of time has necessitated. His undertaking has been a difficult one in which it has been necessary to exercise self-control in knowing where to stop in the elaboration of any subject which he approaches. There is sufficient medical and sanitary information to answer fundamental questions, but the various subjects dealt with are disposed of briefly and authoritatively, without being allowed to extend into critical controversies or technical intricacies. In consequence, an enormous field has been covered, no important phase of the subject has been neglected, and the bearing of bacteriology upon related sciences has been adequately dealt with. This has necessitated an elimination of non-essentials and the authoritative abbreviation of many problems—a task which could not have been accomplished by anyone less wise or experienced. The book, throughout, reflects the mind of its writer, which bacteriologists have long been accustomed to value for its sound judgment.

Changes from the last edition consist chiefly in elaborations in the sections on anaerobic bacteria and addition of the work on scarlet fever, tularaemia and the bacteriophage phenomenon. Minor changes have been made in many places and the only serious accident of proof reading we can find is the irrelevant interpolation of a paragraph on Dochez' scarlet fever work in the influenza chapter. Such things happen to everyone who revises books. But it does not happen to everyone so occupied to maintain through eight editions progressively upholstered with the accumulations of the busiest of all laboratory sciences a conversational stye and readableness that save this book from the dullness that is apt to afflict texts as a class.

Books on bacteriology are, unfortunately—like railroad timetables—doomed to rapid oblivion unless they are rejuvenated at frequent intervals, and the writer of a successful one carries a ball-and-chain on his professional leg which grows heavier with every revision. This one is so firmly established as a habit among students of the subject that we fear Dr. Jordan will have to keep dragging it through a considerable number of future editions.

Simplifying Motherhood. By FRANK HOWARD RICHARDSON, M.D., Brooklyn, N. Y., containing a chapter on breast feeding by Isaac A. Abt, M.D. Illustrated. G. P. Putnam's Sons, New York and London. The Knickerbocker Press. 1925.

Richardson writes this book for mothers in the role of a breast milk enthusiast, and an enthusiasm for breast feeding is a very good one for a pediatrician to have. Many pediatricians are taking a much more active interest than formerly in the problem of breast feeding, and the technique of manual expression of the milk which is becoming a matter of such wide-spread knowledge, outside of New England, has increased this interest. Formerly we admitted that milk from the mother was superior to milk from the cow, and deplored the lost art of maternal nursing. Our zeal is now fired by the fact that we can do something about it. Like most enthusiasts Richardson is somewhat carried away by his enthusiasms for breast milk and certified milk. We believe that both are very valuable, but we do not be-

lieve that all mothers can nurse their babies or that no milk but certified milk is fit for them to drink. Except for this enthusiasm for breast milk, Richardson's book is just another one on the care of babies.

The Normal Mind. By WILLIAM H. BURNHAM, Ph.D. Published by D. Appleton & Company, New York, 1925.

This excellent book correlates in admirable manner the allied fields of Pedagogy. Mental Hygiene and Psychology. So much has been written and said by specialists in one of these fields of study that has not received endorsement from students in another allied field, that this book is most welcome reading.

Quotations from the preface of the author disclose the purpose and content of the book. "This book is concerned with the normal mind, especially with the mental health of normal children. It accepts the common view that mental health and education alike mean adjustment of the individual to environment. The characteristic that makes right adjustment possible it finds in integration of the personality. According to this view the child's mind is integrated, although at a low level at the onset. It reacts as a whole. Education conditioned by the normal functioning of the brain cortex, makes integration at higher levels possible."

The handicaps of hygiene in dealing with the public are four fold the author states. "*First:* Because its teaching concerns very simple matters, good food, pure water, clear air and the like; and in mental hygiene attention orderly association, wholesome interests, self-control—mere common sense.

Second: Because since the aim of hygiene is preventive, if it is successful nothing happens, and the comment is easy that it would have been so anyway.

Third: Because we know relatively little yet of the detailed facts about health conditions—it is still the science of the future.

Fourth: Because in the present undeveloped condition of hygiene, especially of mental hygiene, it is easy to criticise any attempt to state principles or rules, or even conditions of health. It is easy for the cynic to point to the complexity of the mental life and to maintain there is no such thing as principles of mental hygiene."

A partial catalogue of some of the chapter headings gives further information of the subject matter treated,—for example:

The Conditioned Reflex. Habits of Symptoms of Conditioned Reflexes. The School Task. The Social Task. Mental Attitudes. Suggestions and Education. Inhibition. Fear. Success and Failure as Conditions of Mental Health. Discipline and Mental Health. The Principles of Mental Hygiene.

Those who are interested in the problem of the mental development of children, and in Mental Hygiene, will find much to interest and instruct them in this book.

Health Through Prevention and Control of Diseases. By THOMAS D. WOOD, M.D., College Physician and Adviser in Health Education, Teachers College, Columbia University, and HUGH GRANT ROWELL, M.D., Physician, Horace Mann Schools, Teachers College, Columbia University; formerly Director of Health, School Department, New Bedford, Mass., Yonkers-on-Hudson, N. Y.: World Book Company.

This book is deserving of more than passing notice. It is to be regretted that its title does not indicate better what it has to teach. It is a small 8vo. book of only 120 pages, carefully written and arranged so as to present its subject matter clearly to anybody.

Six out of its fourteen chapters relate to the following:

"The Positive Side of Communicable Disease Control."

"Fundamentals for the Control of Communicable Diseases in Schools."

"How to Discover Health Disorders in Children."

"What To Do With a Child Who Shows Signs of Ill Health."

"Important Facts Regarding Communicable Diseases."

"Answers to Questions Parents May Ask."

What makes this book especially notable is that it is obviously written by men who speak from a practical and successful personal experience in actually controlling the spread of communicable diseases among real human beings and that it is free from the "bunk" and platitudes which often characterize the efforts of those who presume to instruct in matters relating to health. The weak points in this book are, where in connection with matters not yet definitely settled, the authors rely for their assertions on the commonly accepted opinions of others.

The book should be in every family where there are children and while it relates primarily to the health of school children, it is to be commended to everybody engaged in public health work, whether in an unofficial or official capacity. In the introduction are to be found emphasized such bits of wisdom as, for example, to watch children for observable suspicious signs of illness, *without asking them about their feelings.*